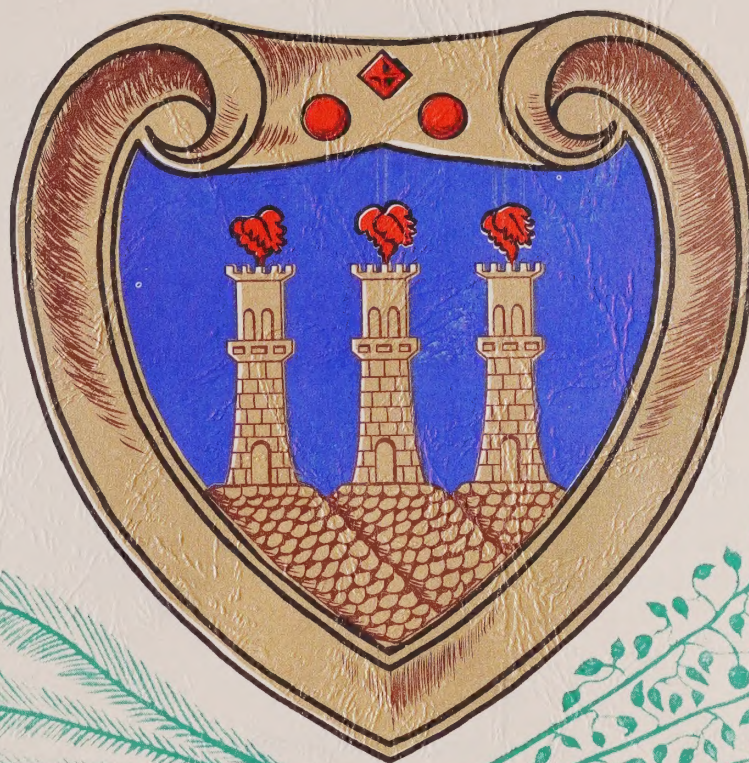


77 01904

General Plan



City of San Marino

San Marino. City council.

City planning San Marino

ADOPTED

1973

PRICE 7.50

ACKNOWLEDGEMENTS

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Grant H. Kenyon	Vice Mayor
Ben Eaton	Councilman
Joseph W. Lewis	Councilman
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on
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SECTION ONE

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CITY OF SAN MARINO GENERAL PLAN - 1990

LEGEND

- | | |
|---|---|
|  LOW DENSITY
0-2 UNITS PER AC. |  ELEMENTARY SCHOOL |
|  MEDIUM DENSITY
2-4 UNITS PER AC. |  COMMERCIAL AREA |
|  HIGH DENSITY
4-8 UNITS PER AC. |  CONSERVATION |
|  CIVIC CENTER |  OPEN SPACE |
|  HIGH SCHOOL | |



COUNTY OF LOS ANGELES

CITY OF SAN GABRIEL

CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN
HAS BEEN OFFICIALLY ADOPTED BY
THE CITY PLANNING COMMISSION OF
THE CITY OF SAN MARINO, CALIF.

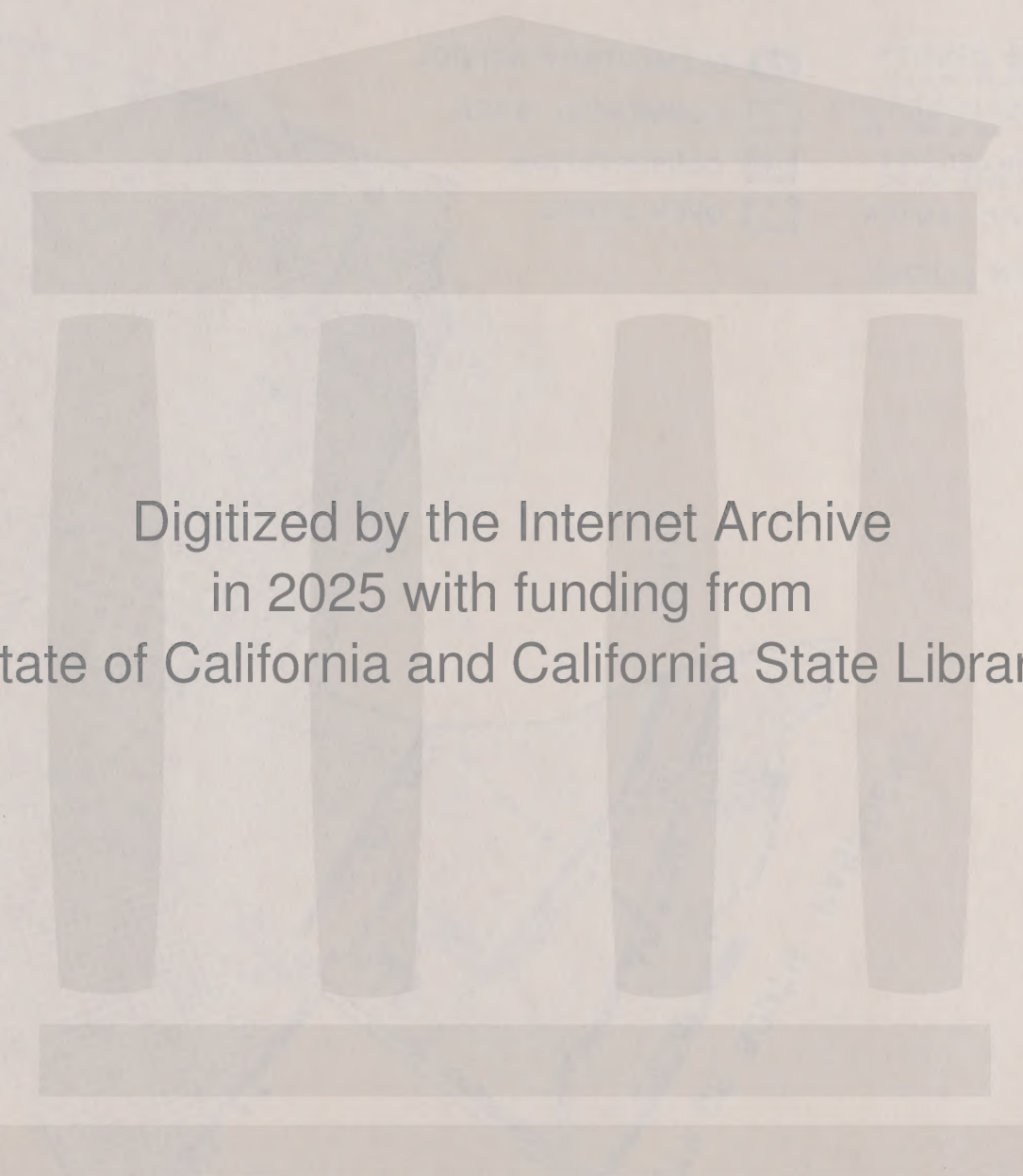
ON THIS _____ DAY OF _____, 1977
AFTER HOLDING THE REQUIRED PUBLIC
HEARINGS.

SIGNED Clyde Holling
CHAIRMAN
ATTEST Patricia B. Brown
SECRETARY

I HEREBY CERTIFY THAT THIS PLAN
HAS BEEN OFFICIALLY ADOPTED BY
THE CITY COUNCIL OF THE CITY OF
SAN MARINO, CALIF. ON THIS

_____ DAY OF _____, 1977
AFTER HOLDING THE REQUIRED PUBLIC
HEARINGS.

SIGNED Marcelo Gomez
MAYOR
ATTEST Patricia B. Brown
CITY CLERK



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THE CITY OF SAN MARINO

San Marino, since its founding in 1913, has preserved its characteristic as a unique residential community. It is unique because, traditionally and at the present time, it has been and remains primarily and almost exclusively, a single-dwelling residential city. Commercial services are limited and consist, through zoning, of a localization of the "everyday" type of services that its residents find convenient. Over the years, the schools, library, parks and recreation programs have been maintained at a high level and have nurtured the community's family life and character.

Because of the warm interest of the residents in the standards and well-being of the community, a close participation has been extended by the citizenry to the civic, educational, and social affairs. It may be said that electorate control of public affairs, sought by many elements in society today, has been the way of life in San Marino.

It is the belief of the City Council of the City of San Marino that it is the desire of its citizens to continue to foster the same type of community, preserve its relative tranquillity, and otherwise enhance its desirability. With such objectives in mind, the following goals for the City are set forth:

STATEMENT OF GOALS FOR SAN MARINO

- To foster improvement in the prevailing quality of residential development, preserving the unique and exclusive single-family residential character of the community.
- To develop a circulation pattern for transportation and travel which will provide for the safe and convenient movement of people and goods within the city, with minimal noise, congestion or hazard.
- To enhance environmental quality by encouraging beautification and tasteful and harmonious design of structures; by curtailing excessive forces and conditions incompatible therewith, e.g. noise, congestion, physical appearances, water and air pollution; and by encouraging optimum property maintenance levels in both the public and private sectors.
- To perpetuate a healthy, but contained and limited, commercial environment as a service and convenience to San Marino residents, without detrimental encroachment upon the single-family areas of the community.

Statement of Goals for San Marino (cont.)

- To provide for its citizens, in cooperation with its school board, adequate recreational facilities and programs.
- To maintain an environment which will provide a variety of cultural, educational, and social experience and to encourage all residents to take advantage of the opportunities provided.
- To furnish, within the limits of prudent expenditure, local government services and facilities for the entire community at a continuing higher level of quality.
- To continue to maintain a sound and reliable fiscal policy designed to make effective use of available resources in providing needed city services.
- To cooperate with adjacent areas and jurisdictions, without the establishment of new layers of government, in the development, coordination, and achievement of common objectives, especially where such objectives are consistent with aforesaid goals.

PURPOSE AND USE OF THE PLAN

The introductory paragraphs with respect to the City of San Marino and the Statement of Goals for San Marino, were adopted by the San Marino City Council in July 1970, and revised for purposes of inclusion in this General Plan.

The purpose of the San Marino General Plan is to implement such goals, to protect property rights, reflect trends in land development, and provide for an arrangement of land uses which promotes the safety, needs, convenience and welfare of the neighborhood, community and City at large.

The San Marino General Plan is a plan portraying certain city planning and environmental objectives and a guide for zoning and developmental decisions. It does not, therefore, suggest or convey any implicit or vested right to a particular use and none should be inferred. Any change of law or zoning must be obtained through a separate procedure established by the City of San Marino.

Because the plan shows future land uses projected as much as twenty years into the future, it indicates possible or conditional uses of land different than may be justified or desirable for many years. The appropriate pattern of development at any given time is determined by considerations of public necessity and desire, convenience, general welfare, sound zoning practice, city planning principle, environmental controls, the Statement of Goals, and the objectives of the General Plan.

Similarly, the indication of possible acquisition for public land, demarcation of open space, or other limitations upon use of private property are not to be construed as anything more than a mere statement of possibility. In each such case, the actual determination will be made on a case basis at the proper time and in accordance with the Statement of Goals.

OBJECTIVES OF THE PLAN

1. To provide a guide to an orderly and balanced development of San Marino, designating and setting apart suitably located and adequate lands for each of the land uses and public facilities comprising the development of the area, in the quantities and densities required to accommodate future population and activities projected to the year 1992.
2. To preserve and enhance the residential character of San Marino. To fulfill the anticipated need for housing, and to provide a variety of housing types in the proportions which maximize the opportunity for individual choice within the constraints imposed by land availability, land and development costs, and population growth.

OBJECTIVES OF THE PLAN (continued)

3. To facilitate traffic circulation within and through the City by the development of an appropriate pattern of streets.
4. To provide an optimum level of public facilities and services, as based on accepted planning principles and adopted City-wide standards, with such modifications as may be required to meet specialized local circumstances.
5. To fully achieve the potential of the City as a major scenic area through the preservation of attractive natural areas through appropriate allocation of open space and conservation.
6. To provide a sound basis of environmental controls so as to maintain an ecological balance in the community.
7. To recognize the posture of the City with respect to surrounding areas.

INTRODUCTION

The City of San Marino is located in an area that was once inhabited by the Hahmognno Indians. During the latter part of the Spanish Era, large ranchos were sold to early Southern California pioneers - many whose names are still familiar to Southern Californians, Benjamin (Don Benito) Wilson, George S. Patton, and James DeBarth Shorb.

With the purchase in 1903 of the Shorb Estate by Henry E. Huntington, a noted railroad builder, land developer, art, literature, botanical and horticultural collector, who wished to provide compatible surroundings to his fine estate (now the world famous Huntington Library, Art Gallery and Botanical Gardens) in the form of a fine single-family residential community, the course for development was assured.

The Shorb Estate, consisting of 600 acres, largely planted in citrus trees, was known as the San Marino Ranch, from which the name of the City was derived. Mr. Shorb had named his California Ranch after his grandfather's plantation in Maryland, which in turn had been named for the tiny Republic of San Marino, located in Italy.

San Marino was incorporated as a General Law City on April 25, 1913, and the first Mayor was George S. Patton, father of the famous General George S. Patton, Jr., of World War II fame. The City is bounded on the north by the City of Pasadena, on the west by the City of South Pasadena, on the south by the cities of Alhambra and San Gabriel, and on the east by the City of San Gabriel and an unincorporated area of Los Angeles County. San Marino is 3.75 square miles in size. The population, according to the 1970 Census, was 14,177. At June 30, 1972, the total number of dwelling units was 4,362.

San Marino has developed into a community of outstanding single family homes, with four attractive business districts conveniently located throughout the City providing the essential professional, business, and service needs of the community.

A portion of the community is developed with lot sizes of 5,500 square feet. The predominant number of lots is approximately 12,000 square feet in area. The northwest portion of the City has lot sizes of 22,000 square feet and up.

LAND USE ELEMENT

The land use element through the year 1992 maintains the residential character of the community. The plan envisions residential densities ranging from two units per acre to six units per acre. Such density provides its own open space and private recreational areas minimizing the need for expanded public facilities. The distribution of land use as proposed is as follows:

<u>Land Use</u>	<u>Acres</u>	<u>Per- cent</u>
Low Density Residential	595.29	24.8
Medium Density Residential	1,032.95	43.0
High Density Residential	411.04	17.2
Business District	44.82	1.9
Civic Center	3.66	0.1
Schools	53.56	2.2
Conservation	211.06	8.8
Open Space	<u>47.62</u>	<u>2.0</u>
	2,400	100 %

The small portion of land, shown as set aside for public facilities, reflects the de-emphasis of government and the emphasis on the neighborhood within the City. The General Plan recognizes San Marino's concept of single family units and projects a population of 14,300 in the next twenty years based on established land use.

It is recognized that some reconstruction or re-development may occur in older residential areas or in conjunction with commercial strips no longer suitable or desirable for commercial use. Any such reconstruction or redevelopment should be carried out essentially as single family residential development in contemporary design and plan.

It is also recognized that in certain instances the land use designation stated above includes property owned by private persons, trusts or entities. Nothing in this plan is intended to restrict or otherwise impinge on the property rights of the owners of such private property notwithstanding the land use designations set forth above.

The housing element has three goals:

1. To promote and insure the provision of single-family housing for all persons regardless of income, age, race, or ethnic or economic background.
2. To promote and insure the provision of housing selection by location, type and price.
3. To promote and insure open and free choice of housing for all, regardless of the growth or change in the City, and regardless of economic conditions.

There are 4,362 dwelling units in the community. As of June 30, 1972, the City's records provide the following data:

<u>Data Item</u>	<u>Count</u>	<u>Percent</u>
1 unit structures -----	4,362	100 %
2 or more unit structures -----	-0-	-0-
Mobil homes -----	-0-	-0-
Overcrowded units -----	-0-	-0-
Units lacking plumbing facilities	-0-	-0-
Units lacking kitchen facilities-	-0-	-0-
Population in overcrowded units lacking plumbing facilities ---	-0-	-0-

The City has laws requiring minimum levels of maintenance of dwelling units. Enforcement of such laws will prevent deterioration of housing. The City has adopted building codes which insure that all new housing will meet required standards.

Because the City is now essentially fully developed - with less than 1% by area (only 20-40 vacant lots) available for development- it is concluded that to provide in the foreseeable future for other than single-family dwelling units would constitute an impractical plan of land use or housing.

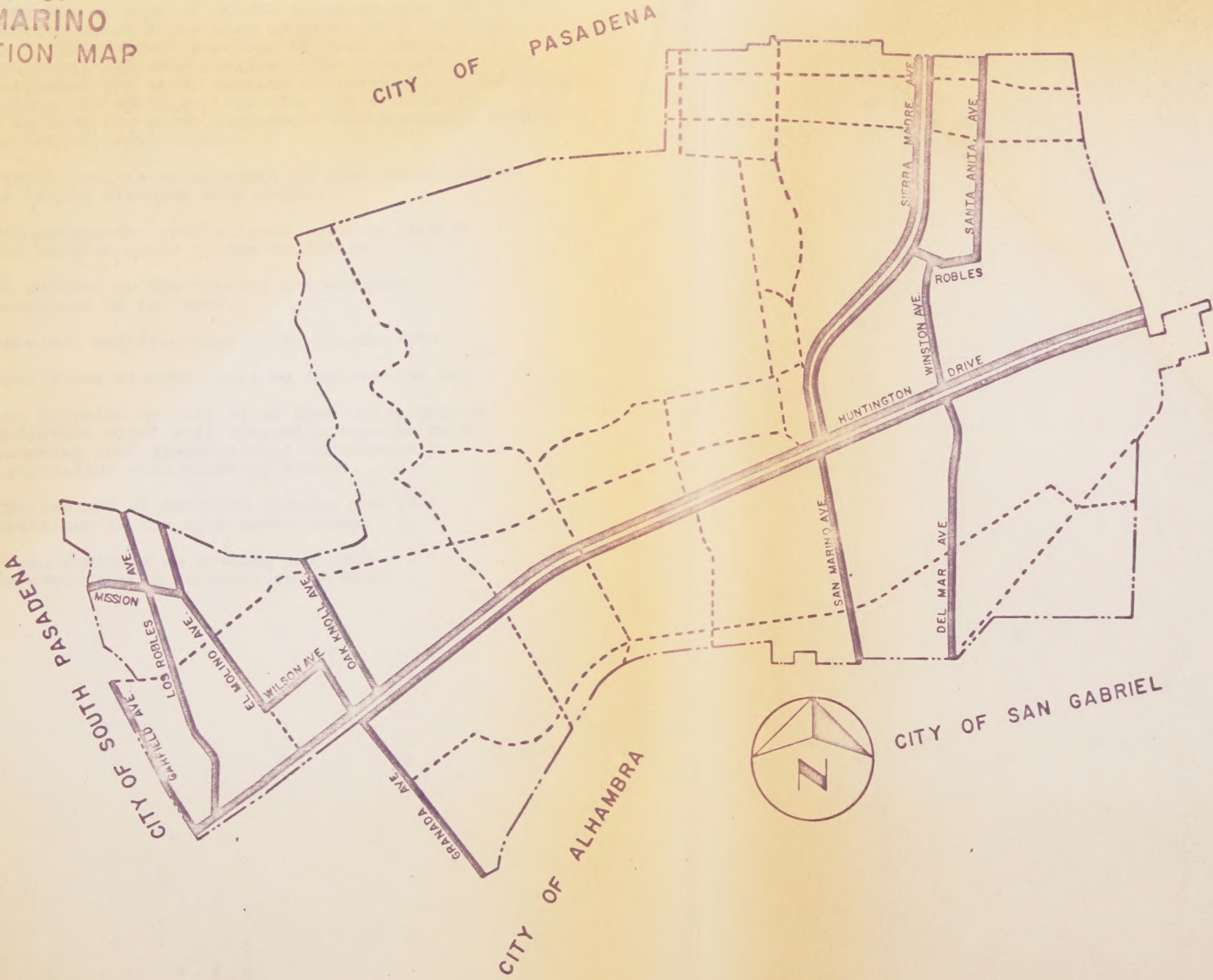
CIRCULATION ELEMENT

The circulation element provides a street system to collect the traffic within the community and connect it with the arterial highway system and freeway system in neighboring cities as well as to provide intra-city circulation. No arterial highways now exist within the community and none is projected. The Foothill Freeway will be located within three miles to the north of San Marino; the Long Beach Freeway will be located within three miles to the west of the City; and the San Bernardino Freeway is located approximately five miles to the south of San Marino. All will provide excellent traffic service to places of employment and business throughout Southern California.

Southern California Rapid Transit District has routes within the City.

The system of public collector streets shown on the plan has a minimum width of 60 feet of right-of-way. The residential nature of streets should be maintained.

CITY OF
SAN MARINO
CIRCULATION MAP



COUNTY OF LOS ANGELES



CITY OF SAN GABRIEL

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN OFFICIALLY ADOPTED BY THE CITY PLANNING COMMISSION OF THE CITY OF SAN MARINO, CALIF.		I HEREBY CERTIFY THAT THIS PLAN HAS BEEN OFFICIALLY ADOPTED BY THE CITY COUNCIL OF THE CITY OF SAN MARINO, CALIF. ON THIS	
ON THIS _____ DAY OF _____, 19__		ON THIS _____ DAY OF _____, 19__	
AFTER HOLDING REQUIRED PUBLIC HEARINGS		AFTER HOLDING THE REQUIRED PUBLIC HEARINGS	
SIGNED: <u>Clyde H. Hays</u> CHAIRMAN		SIGNED: <u>Maurice J. Jones</u> MAYOR	
ATTEST: <u>Patricia L. Hays</u> SECRETARY		ATTEST: <u>Robert J. Brown</u> CITY CLERK	

OPEN SPACE ELEMENT

The City has an area of 47.62 acres of land ($2\% \pm$ of the total incorporated area) that complies with the term "Open Space." Significant portions of this land are of historic, cultural and scenic value. The remainder of the land is designated for park, outdoor recreation and aesthetic beautification. In addition, the City has a built-in open space on each lot under ordinances which require almost 40% of each lot to remain open.

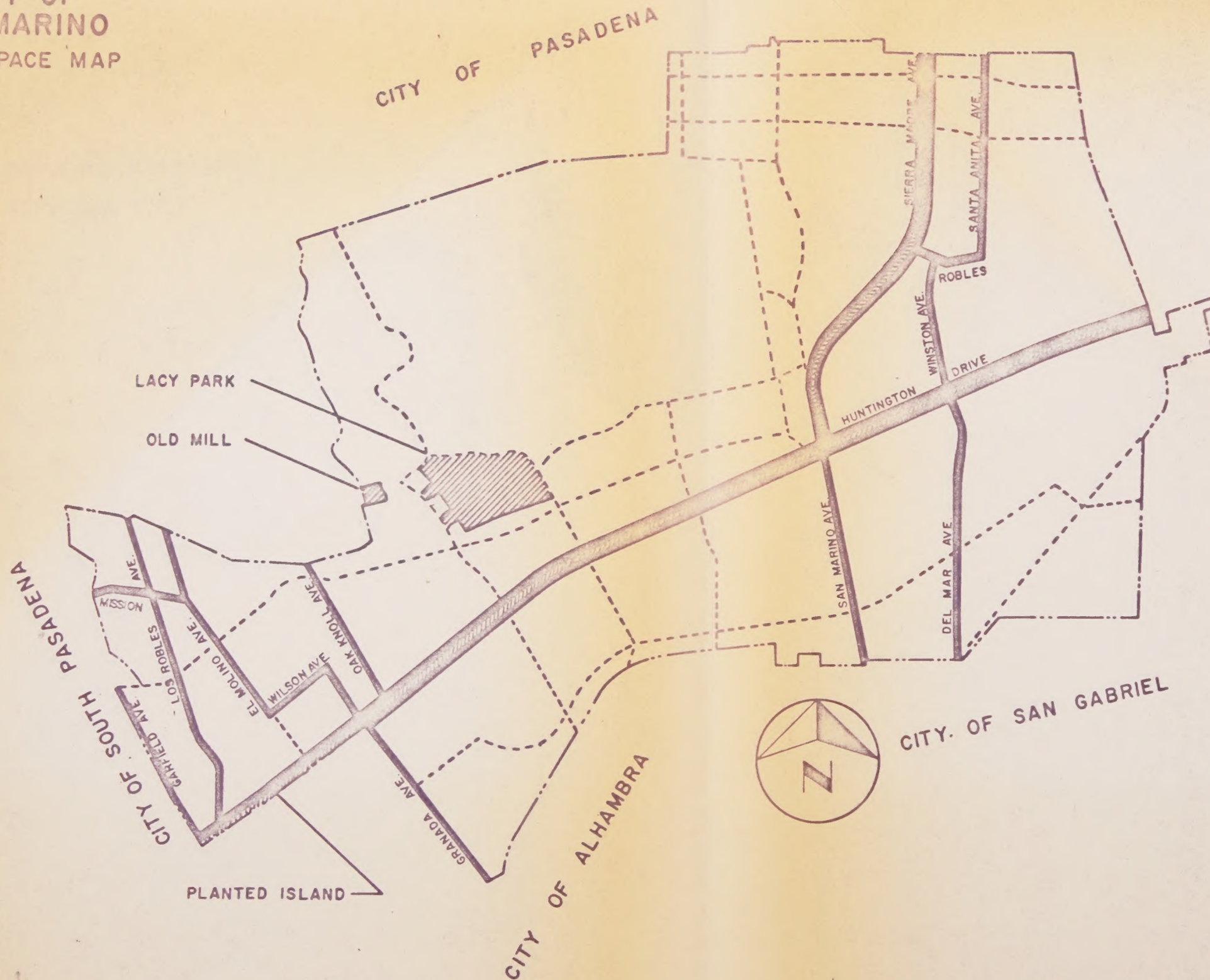
The City's goal is to maintain an open space system for the San Marino Planning area which:

1. Recognizes the recreational, safety, health and welfare needs of the residents.
2. Is related to the natural and man-made processes in the area.
3. Provides multiple use, where appropriate.

The Open Space element shall be implemented by:

1. The adoption by City of an Open Space Zoning Ordinance which will basically seek to retain existing open space without unreasonably interfering with property rights.
2. The control of building permits and subdivisions in the open space areas.
3. Rigid controls on grading and road construction in the open space areas.

CITY OF SAN MARINO OPEN SPACE MAP



COUNTY OF LOS ANGELES

CITY OF SAN GABRIEL

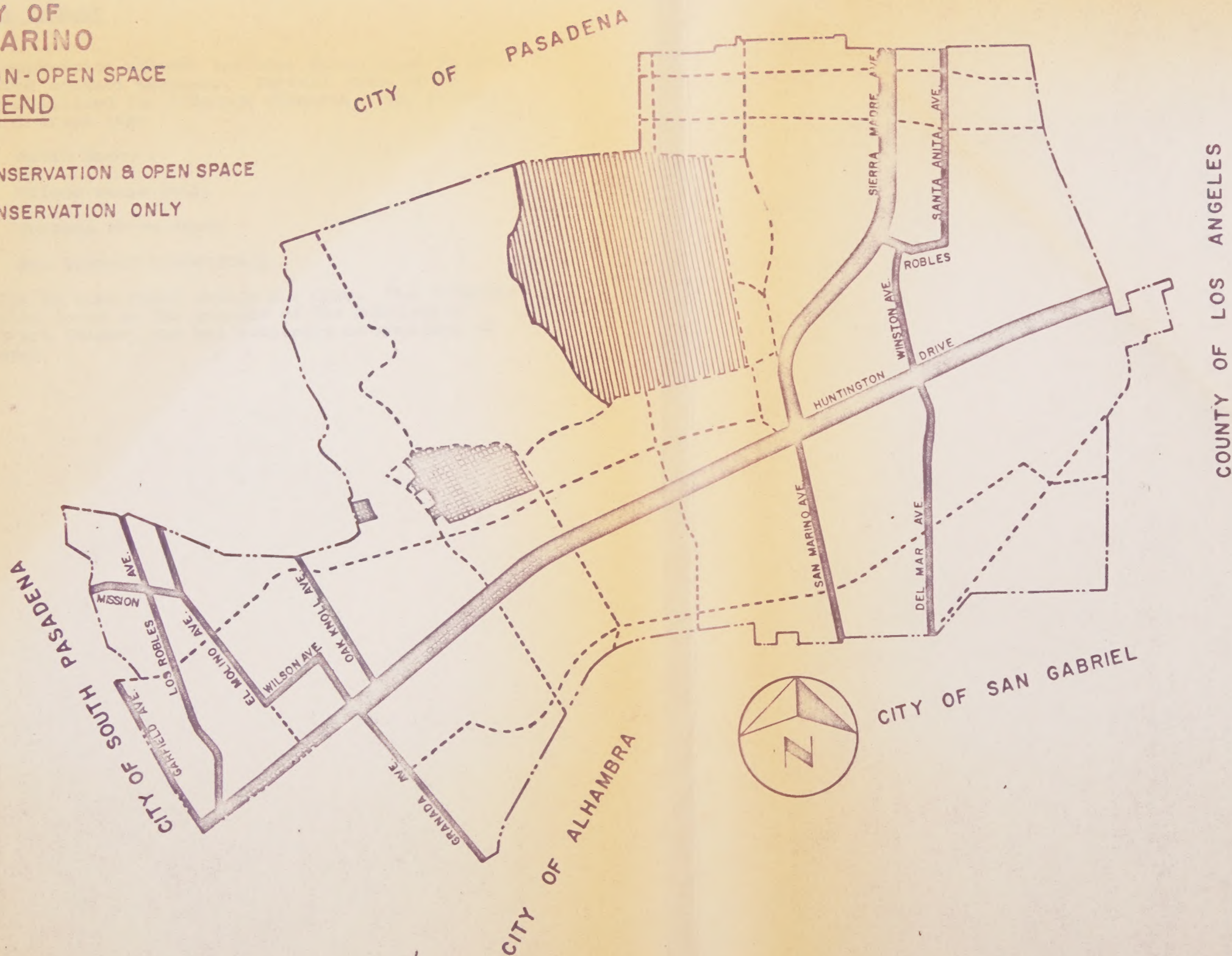
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--	--

CITY OF SAN MARINO

CONSERVATION - OPEN SPACE LEGEND

-  CONSERVATION & OPEN SPACE
-  CONSERVATION ONLY



COUNTY OF LOS ANGELES



CITY OF SAN GABRIEL

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN
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THE CITY OF SAN MARINO, CALIF.
ON THIS _____ DAY OF _____, 197____
AFTER HOLDING THE REQUIRED PUBLIC
HEARINGS.

SIGNED Elyde Hollen
CHAIRMAN
ATTEST Robert B. Brown
SECRETARY

I HEREBY CERTIFY THAT THIS PL
HAS BEEN OFFICIALLY ADOPTED
THE CITY COUNCIL OF THE CITY
SAN MARINO, CALIF. ON THIS
ON THIS _____ DAY OF _____, 197____
HOLDING THE REQUIRED PUBLIC
HEARINGS.

SIGNED Richard B. Brown
MAYOR
ATTEST Richard B. Brown
CITY CLERK

CONSERVATION ELEMENT

The conservation element includes those lands to be used for flood control purposes. Certain lands of the City must be utilized for drainage channels. The primary flood control areas are:

1. Rubio Wash
2. Wilson storm drain
3. Granada storm drain
4. San Pasqual storm drain

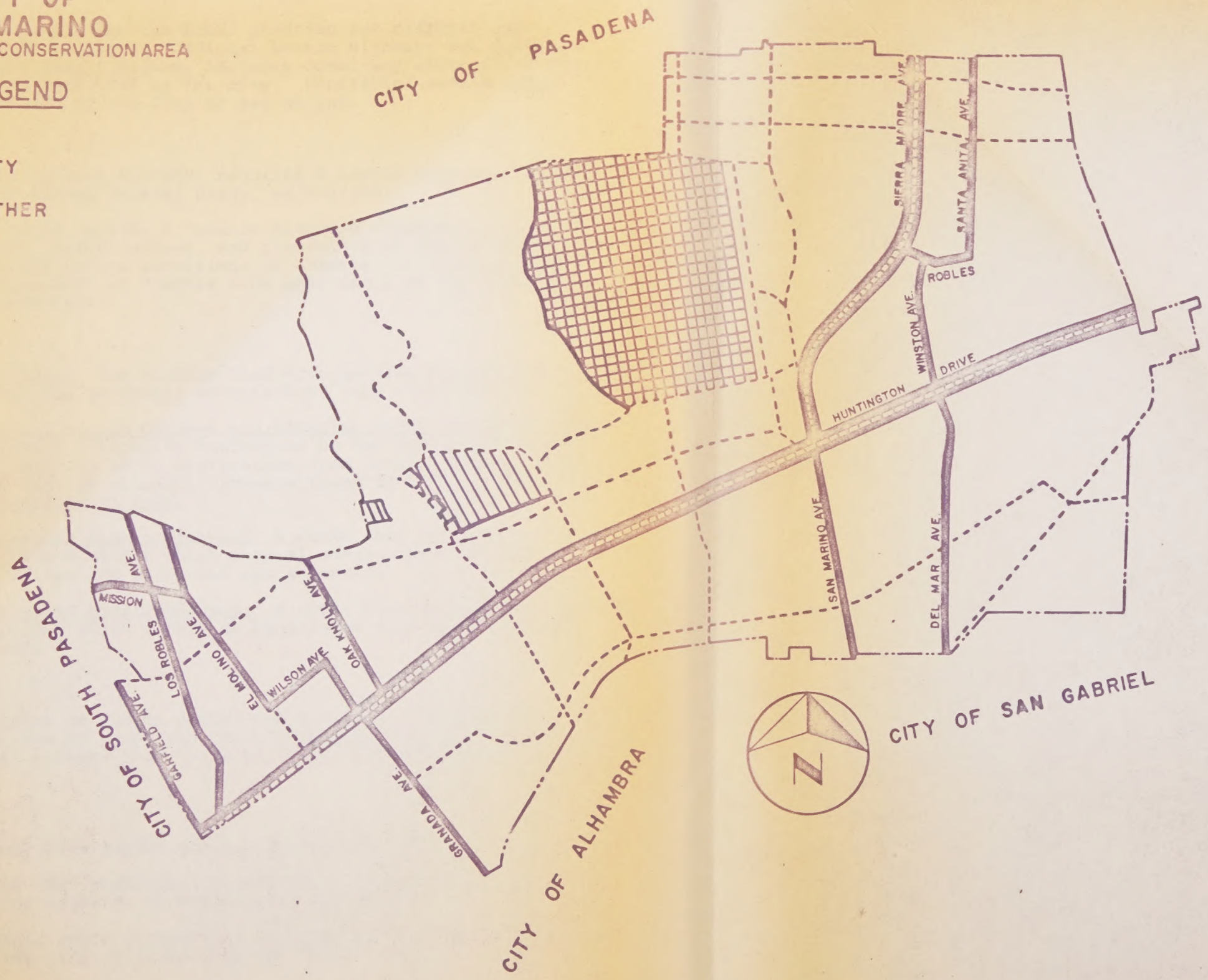
Wildlife is also found within the City. The wildlife is principally found on the grounds of the Huntington Library and Art Gallery and has sanctuary on portions of the 206+ acres.

CITY OF SAN MARINO

OWNERSHIP OF CONSERVATION AREA

LEGEND

-  CITY
-  OTHER



COUNTY OF LOS ANGELES

CITY OF SAN GABRIEL

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--	---

SCENIC HIGHWAYS ELEMENT

INTRODUCTION

This element provides for the local planning for official and unofficial scenic highways. Official scenic highways are designated by the State Scenic Highway Advisory Committee after plans have been adopted and submitted by the city. Unofficial scenic routes may also be adopted by the City of San Marino.

PURPOSE

Government Code Section 65302(h) requires a scenic highways element of all city and county general plans, as follows:

The plan shall include a "scenic highways element for the development, establishment, and protection of scenic highways pursuant to the provisions of Article 2.5 (commencing with Section 260) of Chapter 2 of Division 1 of the Streets and Highways Code."

DEFINITIONS

1. Scenic Corridor: The visible land area outside the highway right-of-way and generally described as "the view from the road."
2. Official State Scenic Highway and Official County Scenic Highway: Scenic highways officially designated by the Scenic Highways Advisory Committee after application from local jurisdictions and only if on list of eligible highways found in Section 263 of the Streets and Highways Code.
3. Rural Designated Scenic Highway: A route that traverses a defined corridor within which natural scenic resources and aesthetic values are protected and enhanced.
4. Urban Designated Scenic Highway: A route that traverses a defined visual corridor which offers an unhindered view of attractive urban scenes.

APPLICABILITY

There are no state or county designated scenic highways in the City of San Marino, and no proposals are now pending, although there are or may be local streets that could be designated as unofficial scenic routes.

POLICIES

San Marino's policies toward scenic highways are to:

1. Acknowledge that there are no officially designated scenic corridors or highways in the City of San Marino.
2. Relate scenic route designation to other applicable General Plan Elements and City policies when and if applicable.

SAFETY ELEMENT

(San Marino General Plan)

PRINCIPAL AREAS OF CONCERN: The Safety Element will concentrate on the following needs:

1. Fire Safety
2. Flood and Geologic Safety

1. Fire Safety for San Marino is emphasized because of natural vegetation in the City's canyons and hilly terrain.

Protection of life and property from fire and related emergencies may be provided by:

- a. San Marino's Fire and Police Departments, including the City operated Ambulance Rescue Unit.
- b. Mutual Aid pacts with five nearby cities and Los Angeles County.
- c. Helicopter service.
- d. Laws and Ordinances relating to Fire Prevention and Safety.

Emergency vehicle traffic routes consist of six main thoroughfares. Average response time for police units is two minutes, and for fire and ambulance units is three to four minutes. Helicopter response time is eight minutes. City streets are easily accessible for all areas for Mutual Aid Assistance.

Planning for war disasters is a joint City and County responsibility. The County compiled a detailed war disaster plan of operation in 1969.

The main impetus for natural disaster planning comes from the Department of Housing and Urban Development of the Federal Government. For all disaster operations, the State Office of Emergency Service has designated the County Sheriff as the operational director for all types of emergencies. The Department is staffed with executives trained to respond quickly at the moment of a disaster with an "on the spot" plan for such items as evacuation routes.

Although the City's propensity for suffering major fire and geologic damage cannot be minimized, the region does have a number of assets in its favor. Foremost among these assets may be the relatively low density character of the area. Thus, chances are slight that any one fire would affect large numbers of people.

SECTION TWO

SEISMIC SAFETY ELEMENT

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SEISMIC SAFETY PLAN

INTRODUCTION

The Seismic Safety Plan is an element of the General Plan of the City of San Marino and conforms to the provisions of Section 65302 (f) of the California State Government Codes, which states:

"A seismic safety element consisting of an identification and appraisal of the seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failures, or to effects of seismically-induced waves such as tsunamis and seiches.

The seismic safety element shall also include an appraisal of mudslides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards such as possible surface ruptures from faulting, ground shaking, ground failure and seismically-induced waves."

The City of San Marino is a residential community almost 99% developed with a minimal commercial development of primarily single story structures. (Maximum height restriction of 30 feet)

STATEMENT OF HAZARDS

As is typical in Southern California, the geological environment in and around the City of San Marino could subject the city to intense ground shaking in the event of a moderate or major earthquake. This could result in loss of life, personal injuries, damage to property, and economic and social dislocations. This Seismic Safety Plan proposes measures to reduce these losses.

An earthquake is caused when the accumulation of strain and strain energy along a fault in the earth's crust exceeds the elastic strength of the rocks. A sudden rupture occurs, releasing the stored energy and creating vibration waves that spread from the earthquake focus, or the point of initial rupture. These phenomena cause permanent change in the earth's topography and may cause extensive damage to man and his structures. There are three basic earth material failure mechanisms associated with an earthquake: shaking, breaking and water-damage.

Shaking causes the greatest amount of damage from earthquakes occurring in rather populous areas. It is estimated the majority of structural failure that has been caused by earthquake results from: (1) shaking which damages the structure directly,

SEISMIC SAFETY PLAN

(2) shaking which causes soil failure beneath the foundation of a structure, and (3) shaking which causes the soil beneath the foundation to densify and settle, thus causing the structure to fail.

Breaking of the earth can be caused by four different processes:

(1) faulting resulting from the displacement of two portions of the earth along the fault plane; (2) lurching, or the surface cracking and rupturing of soils at places other than directly along faults, caused by the inability of large masses of unconsolidated soils to support shaking accelerations; (3) liquefaction which occurs when the shaking action causes saturated soils to lose their strength; and (4) slope failure resulting from the shaking action causing landslides.

Water damage can result from either a tsunamis or a seiche.

Tsunamis are sea waves generated by earthquakes that displace the ocean bottom, massive landslides or volcanic action beneath the sea floor. It can cause severe property damage or life loss.

Seiche results from the shaking of a body of water, such as a bay, lake or pond. Again, the water waves could cause severe damage to structures and death or injury to persons in the path of the water waves. Neither of these conditions can exist in San Marino.

It should be noted that the Raymond Hill Fault passes through the city in an north-easterly direction, a distance of about 2.8 miles. The location of the fault is shown on the State of California's Preliminary Fault and Geologic Map, Preliminary Report 13. This map's scale is 1:750,000 (approximately 1" = 12 miles), so it is not possible to use it to accurately locate the fault in any detail and to expand the map would exaggerate inaccuracies. The State Geologist has directed that the fault be zoned and shown on maps having a scale of 1" = 2,000'. This zoning is expected to be undertaken within the coming year. The Preliminary Review maps are scheduled to be issued July 1, 1976, and the official maps issued January 1, 1977. The City's Public Works Department does have unofficial maps developed by geologists other than those employed by the State Geologists and these maps may be seen at the Public Works Department's offices in the City Hall.

PURPOSES AND USES

The Plan is designed to serve as an official guide for the use of the City Council, the Mayor, and the City Planning Commission, other concerned governmental and private agencies, and individual citizens, on the nature and extent of seismically-associated geologic hazards in the city.

SEISMIC SAFETY PLAN

The policies and programs in this Plan are intended to provide direction and a course of future action for the city and its departments. As such, this Plan is not intended to mandate the city, or its various departments to commence any new programs which may require the expenditure of man hours or funds, nor is it intended as a present land use regulation. Any such actions called for in this Plan must be brought individually to the Council.

The Plan is intended to protect and enhance the public health, safety and welfare within an acceptable level of risk as determined by the Council and the public. Although the plan does not precisely determine land development, geologic and seismic considerations should play a role in determining land use. A primary purpose of the Seismic Safety Plan is to provide information necessary for warranted revisions in the General Plan, in order to respect geological hazard limitations. It is intended to supplement, and not limit, the actions prescribed by other required elements.

As conditions change over time, and new knowledge becomes available, it will be necessary to amend the Plan. It is intended that this review of Plan proposals be conducted at intervals not exceeding five years to ensure a plan commensurate with current seismic knowledge. Revisions to the Plan may also be initiated by a request from the City Council, the City Planning Commission, or the Department of Public Works.

OBJECTIVES OF THE PLAN

1. To encourage public awareness of earthquake and other geologic hazards and inform the general public of protection measures.
2. To ensure that critical structures, such as police and fire stations, and other vital emergency facilities are designed to minimize damage from potential earthquake forces so as to continue to function.
3. To ensure that the city's emergency communications network and operating center remain functional after a major seismic disaster.
4. To reduce interruption of essential services in the event of a seismic occurrence.

SEISMIC SAFETY PLAN

5. To reduce the risk of life and property loss.
6. To determine the relative seismic risk in various parts of the city as a guide to new development and hazard abatement of existing structures.
7. To reduce potential nonstructural damage from ground shaking or other seismic failure mechanisms.
8. To guide in the determination of future land uses within zones of potentially higher seismic risk.
9. To facilitate post-disaster recovery.

GEOLOGIC EVALUATION

Policies

1. The city shall continue to evaluate geographic areas to determine the level of earthquake risk.
2. The city shall utilize geologic and seismic criteria in determining land rezoning, particularly in identified study areas.

Programs

1. Consider the creation of an Earthquake Technical Advisory Committee comprised of representatives from recognized professional societies to assist in the periodic review of the seismic safety plan to assure that the plan remains current with existing levels of knowledge.
2. Develop accurate maps of potential and probable liquefaction areas based upon all available existing information.
3. If liquifaction areas are determined to exist, employ geologists or soils engineers to investigate the cause of high groundwater in the areas subject to liquefaction and develop a program to lower the groundwater to safe levels, where feasible. Detailed liquefaction studies may be required for Importance Factors 1, 2, or 3. (See Table 1).

SEISMIC SAFETY PLAN

4. Maintain a cooperative effort with the appropriate State and Federal agencies on trenching, instrumentation of microseismic activity, and other subsurface explorations to gain a better understanding of the precise locations and relative degrees of activities of various faults.
5. Study topographic and stratigraphic records of the past histories of identified faults within the City to determine their level of seismic activity.
6. When trenching for utility lines crosses a fault study zone, a geologist shall examine the trench for pertinent fault information.

EXISTING DEVELOPMENT

Policies

1. Public facilities should be investigated and upgraded, if necessary, to meet the risk requirements for seismic safety.
2. City bridges shall be evaluated and upgraded, as necessary, to meet the acceptable risk requirements for seismic safety.
3. Pre-1934 non-reinforced masonry buildings that do not meet requirements for seismic safety should be strengthened or abated in an orderly manner, as determined by the City Council. Prior determination for seismic upgrading of these buildings shall include the degree of life hazard, occupancy, construction, physical condition, and location, as well as social, cultural, and economic factors.
4. Earthquake damage shall be documented to assist in establishing adequacy of regulations and programs.

Programs

1. Conduct structural reviews of all City-owned public buildings and structures for their potential disaster utility and for structural adequacy.
2. Request Federal or State assistance to implement any required corrective measures required for public facilities.

SEISMIC SAFETY PLAN

3. Request seismic safety assessments of governmental structures not under City control (e.g. County, State and Federal).
4. Continue to control the uses and occupancies in seismically unsafe buildings by limiting them to the present or less hazardous occupancies.
5. Encourage residents of hillside lots to take steps to reduce the risk of landslides by proper maintenance.

NEW DEVELOPMENT

Policies

1. Geologic and seismic criteria and soils information shall be used as a consideration in approval of new developments in designated Fault Study Zones.
2. Buildings shall be designed in accordance with the building code to resist the effects of seismic occurrences.
3. The safest locations should be reserved for the following uses, in order of priority:

Reservoirs

Hospitals

Emergency facilities (police and fire)

Schools

Utilities and transportation facilities,
including rapid transit

Low-rise structures

Programs

1. Construction of habitable structures shall be regulated within the Proximal Fault Study Zone.
2. Prohibit the construction of any building designed for human occupancy and/or designated for emergency use astraddle the surface trace of known active or potentially active faults as determined by geologic and seismologic investigations of the specific site.

SEISMIC SAFETY PLAN

3. Comprehensive geologic-seismic design-foundation engineering investigations reports shall be submitted for all new critical facilities (Importance Factors 1 and 2) regardless of location and structures of Importance Factor 3 to be located in the detail study areas.
4. Maintain the program of updating the seismic regulations of the Building Code.

NONSTRUCTURAL ELEMENTS

Policies

1. Anchorage requirements for nonstructural elements shall be considered for new construction and for rehabilitation of existing buildings and structures.

Programs

1. Investigate the feasibility of requiring the anchoring of machinery, equipment, shelving, storage racks and other nonstructural elements within all buildings.

CRITICAL FACILITIES

Policies

1. Critical facilities having Importance Factor 1 or 2 shall be designed and operated in a manner to maximize their ability to remain functional after an earthquake.
2. Existing critical facilities not designed to be earthquake resistant shall be examined and hazardous structures shall be strengthened or demolished in an orderly manner.

Programs

1. Prohibit the construction of new critical facilities across the trace of a known active or potentially active fault.

SEISMIC SAFETY PLAN

2. Design critical facilities for which there is a public need that they survive an earthquake in operable condition (such as police and fire stations) to a higher standard of performance than other buildings and facilities.
3. In that San Marino is but a small portion of the overall utility systems, request Los Angeles County to establish requirements that assure a reasonable survival capability of utility systems required to operate after an earthquake and that crews are trained and crews and supplies are available for emergency repairs.

EMERGENCY PREPAREDNESS AND POST-EARTHQUAKE RECOVERY

Policies

1. The public shall be made aware of seismic hazards and how to reduce the risk to their lives and property.
2. Emergency plans dealing with disaster response shall be continually maintained and revised.
3. The public shall be kept informed of what to do in the event of a seismic disaster.
4. Property owners shall be encouraged to take adequate steps to protect their property against the economic risks of seismic hazards.
5. Psychological relief after an earthquake shall be provided by appropriate agencies.

Programs

Consider an educational and information program to educate the public on being prepared for an earthquake, and on procedures to follow during and after an earthquake, etc.

Continue to conduct periodic exercises to ensure that all City departments respond efficiently and that the emergency communications network, emergency control center and reconnaissance systems are properly maintained.

SEISMIC SAFETY PLAN

Seek Federal aid to establish an emergency communication system for disaster inspection teams in the Department of Public Works.

Cooperate with the Office of Civil Defense in disseminating information on procedures to be followed in the event of earthquake.

Encourage the lending and insurance industries to advise fire and homeowner policy holders of insurance provisions relating to earthquakes, floods and mudslides.

Urge that a comprehensive school planning program includes such factors as reuniting children with parents as quickly as possible after an earthquake.

STANDARDS AND CRITERIA

Levels of Acceptable Risk

The Joint Committee on Seismic Safety of the California Legislature has recommended a scale of acceptable risk, Table 1. This table defines the Importance Factors used in this plan.

Grading

The Building Code used by the City of San Marino sets forth the specific requirement for grading.

Liquefaction

Liquefaction is generally caused by earthquake shaking. Where saturated conditions exist near the ground surface, the possibility of liquefaction should be considered prior to development.

Structural Adequacy

The Building Code used by the City of San Marino sets forth the design and construction adequacy requirements.

Fault Study Zones

Fault Study Zones are of two types:

1. One-Quarter Mile Fault Study Zone

A One-Quarter Mile Fault Study Zone should be established 1/8 mile on either side of a known or assumed trace of an

SEISMIC SAFETY PLAN

active fault. This study zone boundary may be increased or reduced in size depending upon the following criteria:

Sufficient data concerning the subject study zone has been gathered to justify a narrower or wider zone

Ease in identification of the zone by utilizing street boundaries or other physical landmarks.

2. Proximal Fault Study Zone

The area within 50 feet of an active fault trace, as determined by the quarter mile study, shall be known as the Proximal Fault Study Zone. Engineering geologic and soil engineering investigations may be required, based upon subsurface exploration, laboratory testing and current state of knowledge.

Engineering Investigation Reports

These investigation reports should include, but not limited to, consideration of the following:

Fault proximity

Characteristics of the foundation materials

Ground failure potential

Estimated earthquake parameters of bedrock motion

Ground motion spectrum.

TABLE I. A SCALE OF ACCEPTABLE RISKS

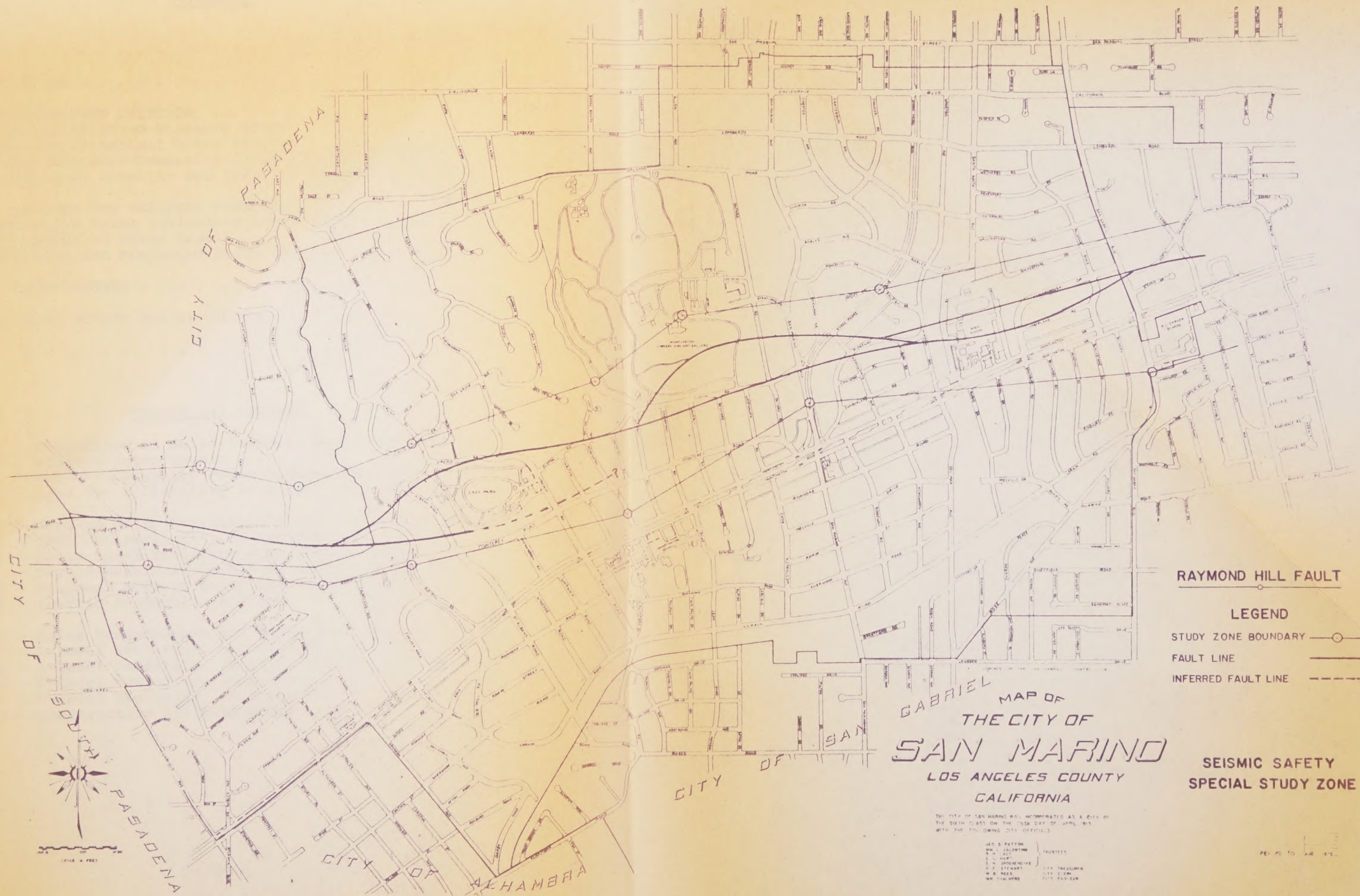
Importance Factor	Level of Acceptable Risk	Kinds of Structures	Extra Project Cost Probably Required to Reduce Risk to an Acceptable Level
1.	Extremely low ¹	Structures whose continued functioning is critical, or whose failure might be catastrophic; nuclear reactors, large dams, power intertie systems, plants manufacturing or storing explosives or toxic materials.	No set percentage (whatever is required for maximum attainable safety)
2.	Slightly higher than under level 1 ¹	Structures whose use is critically needed after a disaster: important utility centers; hospitals; fire, police and emergency communication facilities; fire stations; and critical transportation elements such as bridges and overpasses; also smaller dams	5 to 25 percent of project cost ²
3.	Lowest possible risk to occupants of the structure ³	Structures of high occupancy, or whose use after a disaster would be particularly convenient: schools, churches, theaters, large hotels, and other high-rise buildings housing large numbers of people, other places normally attracting large concentrations of people, civic buildings, secondary utility structures, extremely large commercial enterprises, most roads, alternative or noncritical bridges and overpasses.	5 to 15 percent of project cost ⁴
4.	An "ordinary" level of risk to occupants to the structure ⁵	The vast majority of structures: most commercial and industrial buildings, small hotels and apartment buildings, and single family residences.	1 to 2 percent of project cost, in most cases (2 to 10 percent of project cost in a minority of cases)

(Footnotes are on next page)

Source: Meeting the Earthquake Challenge, Final Report to the Legislature, State of California, by the Joint Committee on Seismic Safety, Jan. 1974. Part One: A Comprehensive Approach to Seismic Safety, p. 9

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1. Failure of a single structure may affect substantial populations.
2. These additional percentages are based on the assumption that the base cost is the total cost of the building or other facility when ready for occupancy. In addition, it is assumed that the structure would have been designed and built in accordance with current codes. Moreover, the estimated additional cost presumes that structures in this acceptable-risk category are to embody sufficient safety to remain functional following an earthquake.
3. Failure of a single structure would affect primarily only the occupants.
4. These additional percentages are based on the assumption that the base cost is the total cost of the building or facility when ready for occupancy. In addition, it is assumed that the structures would have been designed and built in accordance with current codes. Moreover, the estimated additional cost presumes that structures in this acceptable-risk category are to be sufficiently safe to give reasonable assurance of preventing injury or loss of life during an earthquake, but otherwise not necessarily to remain functional.
5. "Ordinary risk": Resist minor earthquakes without damage; resist moderate earthquakes without structural damage, but with some non-structural damage; resist major earthquakes of the intensity or severity of the strongest experienced in California, without collapse, but with some structural as well as non-structural damage. In most structures, it is expected that structural damage, even in a major earthquake, could be limited to repairable damage. (Structural Engineers Association of California).



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SUMMARY

Noise measurements and analysis have been performed and Community Noise Equivalent Level (CNEL) contours have been derived for the City of San Marino. These contours provide the composite of noise produced within the City by traffic on the highways within, and bordering the City. A Noise Impact Zone is identified which is considered unsuitable for residential development. Sample noise level recordings are provided which exemplify representative highway, and to a limited extent, aircraft noise elements. To maintain and where possible reduce the exposure of the community to noise, recommended action includes:

- (1) A limitation of the growth of residential development in proximity to the Noise Impact Zone.
- (2) Enforcement of a building code standard which identifies acceptable levels of intrusive noise and sound transmission between single family dwellings.

I. INTRODUCTION

Noise is defined as unwanted sound. It is an undesirable by-product of transportation elements and commercial activities within the community. Annoyance caused by noise is more often experienced the most by those that benefit the least from its cause. A neighbors home air conditioner or a passing motorcycle, are but a few examples of this insidious disturbance to our urban environment.

In general, noise is not considered a significant environmental problem in the City of San Marino. However, this generalization may not prove comforting to the individual subjected to the shrill of a motorcycle while in the repose of his living room. Recognizing the nature of this environmental factor, California State law* requires that each city include a Noise Element in its General Plan. The study reported herein, provides the required background information for the preparation of this Noise Element.

The primary goal of this study is stated as follows:

...to protect the health and welfare of the community through the identification and control of noise pollutants.

To achieve this goal, noise measurements were obtained and contours of equal noise exposure have been derived and mapped for the City of San Marino. These contours provide the projected exposure due to traffic on the arterials. Procedures have been included which permit the application of these contours as follows:

*California Government Code, Chapter 775,
Section 65302(g) included in this report.

- (1) To provide an estimate of existing noise exposures.
- (2) To establish the variation of noise level with time-of-day.
- (3) To establish the variation of noise level day-of-week.
- (4) To determine the seasonal variation of noise level.

II. NOISE EVALUATION CRITERIA

A description of the character of a particular noise requires at least the following:

- (1) amplitude and amplitude variation of the acoustic wave;
- (2) frequency (pitch) content of the wave motion; and
- (3) duration of the noise.

The scale of measurement which is most useful in community noise measurement, is the A-weighted sound pressure level, commonly called the A-level or dB(A).^{*} This noise measure, its application to a measure of noise exposure and its utility in the description of ambient noise levels, are discussed in the remainder of this section.

A. A-Weighted Sound Pressure Level

Throughout this report, the magnitude of noise is indicated by application of the A-level or dB(A) measure of noise. To establish the A-level, the acoustic signal is detected by the microphone and then filtered, heavily weighting those portions of the noise which are most annoying to individuals. The root-mean-square (rms) value of this weighted signal is then read, utilizing a conventional sound level meter. It is interesting to note that the A-weighted filter characteristic actually amplifies the signal at frequencies between 1000 and 5000 Hz. At frequencies substantially above and below this range it severely rejects the acoustic signal. This weighting of sound energy corresponds approximately to the relative annoyance produced by noise at various frequencies. The A-weighted sound pressure levels of a few typical sources of noise are listed in Table II-1.

^{*}A-level or dB(A) is twenty (20) times the logarithm to the base ten (10) of the ratio of the A-weighted sound pressure to a reference pressure of twenty (20) micro-newtons per square meter.

In addition to indicating the relative noise level of sources, Table II-1 provides a comparison their relative loudness.

The A-level of traffic noise and other long term noise producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-level for a specified period of time. Analysis of these recordings yields A-level values of noise which are useful in assessing the potential annoyance of the disturbance. For purposes of this study, the following values have been used:

- L₉₀ - the near minimum A-level, 90% of the time the A-level is greater than this value;
- L₅₀ - the central tendency of A-level, this value is exceeded 50% of the time during the measurement period; and
- L₁₀ - the near maximum A-level, is exceeded 10% of the time during the measurement period.

Readings of these three measures are recorded for a period of 12 minutes to provide representative samples of the noise during the time period being examined (i.e., peak-traffic period, morning, afternoon and night, etc.).

B. Acceptable Ambient Noise Levels

In general, it must be recognized that noise is objectionable and under certain conditions, may affect the average individual in any of the following ways:

- (1) General hearing loss or damage.
- (2) Impaired hearing for speech communication.
- (3) Interference with one's ability to understand oral communication.
- (4) Sleep interference.
- (5) Contributes to nervousness and tension.

Noise levels which exceed 85 dB(A) are generally considered to contribute to hearing loss. When experienced for long durations during each working day, an individual may experience severe temporary or even permanent hearing loss. State and Federal Health and Safety Regulations currently protect workers at levels of exposure which exceed 90 dB(A) for each eight (8) hour work day.

Speech communication and speech intelligibility is impaired and may even become impossible at levels from 60 to 70 dB(A). Sleep interference may be experienced at noise levels in excess of 35 dB(A). Generally accepted standards consider noise levels above 45 dB(A) to be unacceptable for sleeping spaces.

The League of California Cities recommends that the community ambient noise level of all background sounds should not exceed the values indicated in Table II-2. It should be the goal of the City of San Marino to at least maintain ambient noise levels considered "quiet", to most reasonable people as indicated in Table II-2.

C. Noise Exposure - Community Noise Equivalent Level

It is recognized that a given level of noise may be more or less tolerable, depending on the duration of exposure experienced by an individual. There are numerous measures of noise exposure which consider not only the A-level variation of noise, but also include the duration of the disturbance. The State Department of Aeronautics has adopted the Community Noise Equivalent Level (CNEL)*. This measure considers a weighted average noise level for the evening hours from 7:00 p.m. to 10:00 p.m., increased by 5 dB and the late

*Calif. Government Code, Title 4, Subchapter 6, Noise Standards

evening and morning hour noise levels from 10:00 p.m. to 7:00 a.m., increased by 10 dB. The daytime noise levels are combined with these weighted levels and averaged, to obtain a CNEL value.

The United States Environmental Protection Agency (EPA) is now considering a Federal policy of noise control and acceptable levels of noise exposure (Reference 7). This measure of exposure most likely to be used is the Day-Night Average Noise Level, L_{dn} . This measure is essentially a weighted average of the noise levels experienced for each 24-hour period. Late evening and early morning (10:00 p.m. to 7:00 a.m.) noise levels are more annoying and therefore are increased by 10 dB and averaged along with the daytime levels. This measure differs from the CNEL value only the elimination of the 5 dB of additional weighting applied to noise experiences during the hours from 7:00 p.m. to 10:00 p.m. For sources of noise in the City of San Marino, two measures, CNEL and L_{dn} are about equal. Hence, the California Standard (CNEL) will be used in this study to evaluate the impact of noise exposures. A comparative description of outdoor CNEL values is provided in Figure II-2. Recently a State agency has applied the CNEL measure to the evaluation of noise impact near highways and railways.

D. Acceptable Interior & Exterior Noise Exposures

California's new noise and energy insulation standards, mandated by the Legislature to be in effect this year, were officially adopted by the California Commission of Housing and Community Development at a public hearing held February 22, 1974. The new regulations for noise became effective on August 22, 1974. The ruling states that:

"Interior Community Noise Equivalent Levels (CNEL) attributable to exterior sources shall not exceed an annual CNEL of 45 dB in any habitable room."

Additionally, the Commission specified that residential buildings or structures to be located within exterior Community Noise Equivalent Level Contours of 60 dB of an existing or adopted freeway, expressway, parkway, major street thoroughfare, railroad or rapid transit line, shall require an acoustical analysis showing that the building has been designed to limit intruding noise to levels prescribed (CNEL of 45 dB).

TABLE II-1 Comparison of Various Noise Sources, Noise Levels, and Loudness

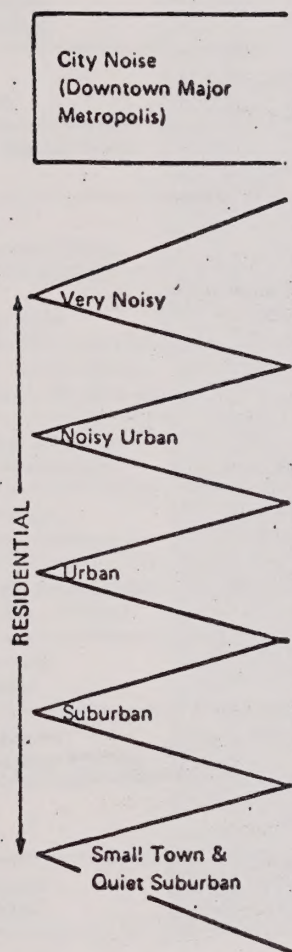
Decibel Ratings db (A)	Over-All	Outdoor Noise Sources	Loudness
130		Jet aircraft take-off with after-burner	
120	Uncomfortable		32 times as loud
		Turbo-prop aircraft at take-off	16 times as loud
100	Very Loud	Jet fly-over @ 1000 feet	8 times as loud
90		Power mower Diesel truck at 40 MPH @ 25 Ft. Motorcycle @ 25 Ft.	4 times as loud
80		Gasoline powered trucks @ 25 ft. Car wash @ 20 ft. Propeller plane fly-over @ 1000 feet.	2 times as loud
	Moderately Loud	Automobile at 65 MPH @ 25 Ft. High urban ambient sound.	REFERENCE NOISE
60		Air conditioning unit @ 100 ft.	1/2 as loud
	Quiet	Large transformers @ 100 ft.	1/4 as loud
50		Bird calls, lower limit	
40			1/8 as loud
	Just audible		
10			
	Threshold of hearing		
0			

TABLE II-2 AMBIENT NOISE LEVELS

Zone	Time	Quiet	Slightly Noisy
Residential	10 pm - 7 am	45 dB(A)	50 dB(A)
	7 pm -10 pm	50	55
	7 am - 7 pm	55	60
Multi-Family	10 pm - 7 am	50 dB(A)	55 dB(A)
	7 am -10 pm	55	60
Commercial	10 pm - 7 am	55 dB(A)	60 dB(A)
	7 am -10 pm	60	65
Industrial	anytime.	70 dB(A)	70 dB(A)

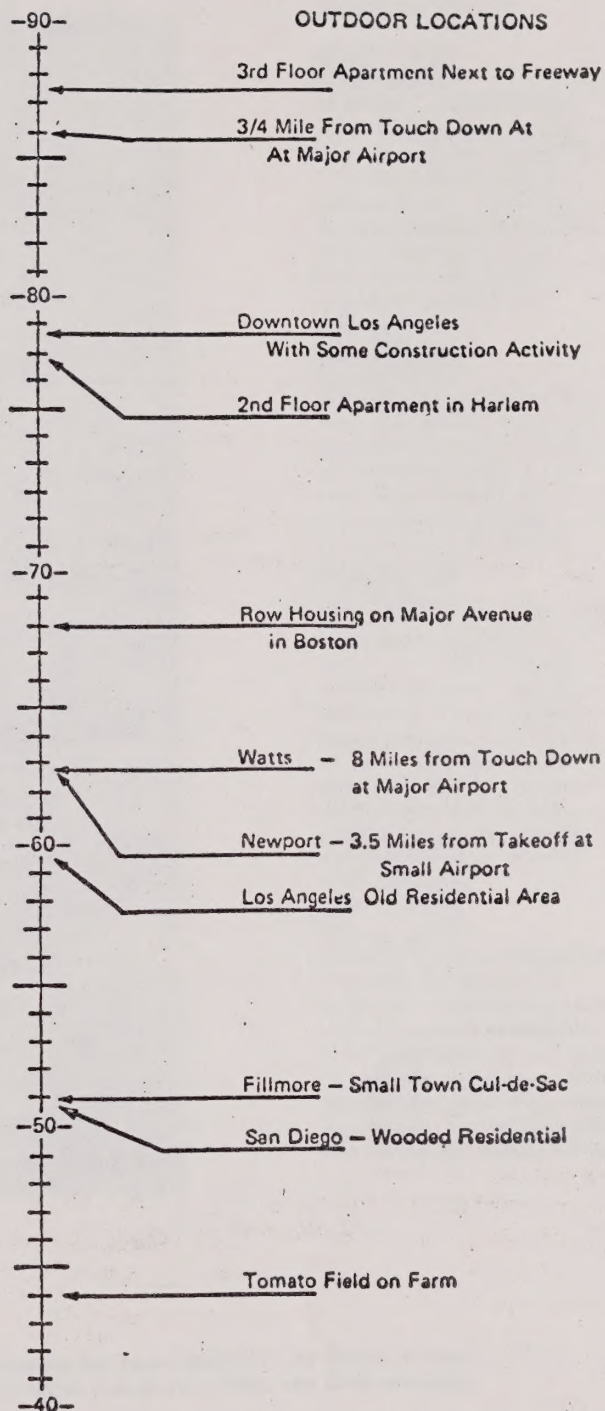
Source: League of California Cities, Quiet City Report.

QUALITATIVE
DESCRIPTIONS



CNEL

OUTDOOR LOCATIONS



Source: U.S. Environmental Protection Agency, Reference 7.

Figure II-1 OUTDOOR COMMUNITY NOISE EQUIVALENT LEVEL (CNEL)
AT TYPICAL LOCATIONS

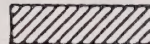
LAND USE	CNEL					
	55	60	65	70	75	80
Residential- Single Family, Duplex, Mobile Homes						
Residential- Multiple Family						
Transient Lodging						
School Classrooms, Libraries, Churches						
Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Music Shells						
Sports Arenas, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Personal, Business and Professional						
Commercial- Retail, Movie Theaters, Restaurants						
Commercial- Wholesale, Some Retail, Ind., Mfg., Utilities						
Livestock Farming, Animal Breeding						
Agriculture (Except Livestock), Mining, Fishing						
Public Right-of-way						
Extensive Natural Recreation Areas						

INTERPRETATION



CLEARLY ACCEPTABLE

The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference from aircraft noise. (Residential areas: both indoor and outdoor noise environments are pleasant.)



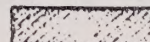
NORMALLY ACCEPTABLE

The noise exposure is great enough to be of some concern, but common building construction will make the indoor environment acceptable, even for sleeping quarters.



NORMALLY UNACCEPTABLE

The noise exposure is significantly more severe so that unusual and costly building construction is necessary to insure adequate performance of activities. (Residential areas: barriers must be erected between the site and prominent noise sources to make the outdoor environment tolerable.)



CLEARLY UNACCEPTABLE

The noise exposure is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive. (Residential areas: the outdoor environment would be intolerable for normal residential use.)

Community Noise Equivalent Level

SOURCE: HUD, "Aircraft Noise Impact: Planning Guidelines for Local Agencies", by Wilsey & Ham and Bolt, Beranek and Newman, 1972. Adapted to incorporate CNEL and CNR measures.

Figure II-2 LAND USE SUITABILITY IN NOISE IMPACT AREAS

III. NOISE SOURCES AND EXPOSURE CONTOURS

Transportation noise is experienced, to some degree, throughout the City of San Marino. Noise is generated by highway traffic, and to a limited extent, by large turbo-jet aircraft approaching the Los Angeles International Airport. Representative samples of these noise producing elements have been obtained within the City. From these measurements and complimenting analytical procedures, noise exposure contours have been derived for the City, and a noise impact zone identified. The impact of these contours on land use planning is discussed in Section IV of this report. This section is devoted to a discussion of the exposure contours and noise level variations and elements within the City.

A. Community Noise Equivalent Level (CNEL) Contours

CNEL contours have been derived, accounting for the transportation noise producing elements within the City. The results of combining the noise measurements and analytical procedures is the CNEL Contour Map, Figure III-1. The procedure used to derive these contours essentially relies on research studies reported by:

- (1) National Highway Research Board (Reference 1, 2 & 3).
- (2) U. S. Department of Housing and Urban Development (Reference 4 & 5).
- (3) U. S. Department of Transportation (Reference 6).
- (4) U. S. Environmental Protection Agency (Reference 7).

As indicated in the legend of Figure III-1, contours are provided for CNEL values from 45 to 65 dB in 5 dB increments. The State Noise Element Requirements (Appendix I) call for 5 dB noise contours down to 65 dB(A) and in certain areas to 45 dB(A). Projected A-levels throughout the City indicate 45 dB(A) as a lower value. The 70 and 75 dB contours are on the major arterials. The zone contained within

the 65 dB contour is identified as the "Noise Impact Zone".

The contours provide noise exposure levels for the projected 1986 environment. They are a composite of traffic movements on the primary and secondary arterials. Table III-1 provides a listing of each of the arterials considered of significance in the development of the CNEL contours. It also provides a listing of the average daily volume of traffic used to generate the CNEL values. The distance from the nearlane center-line to the 65 CNEL contour is also indicated.

Noise at most locations in the City is generated by aircraft approaching the Los Angeles International Airport. This noise does not have a significant impact on the City, and is probably not a source of annoyance.

B. Variation of Noise Level

In general, the noise level variation within the City is similar to that experienced in most populated urban areas. The average noise level (L_{50}) during the peak traffic hours is about 45 to 65 dB(A) at residential locations near the primary and secondary arterials. The variation in level at most locations, approximately follows the hourly variation in traffic volume. Figure III-2 provides a typical noise level variation relative to the peak traffic hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) for the major arterials within the City.

Figure III-3 provides a relative noise exposure level variation with day-of-week. This plot considers the traffic variation in the City only. Figure III-4 indicates the typical seasonal variation of average daily volume (ADT) in the City. The variation of seasonal

noise level when applied to the CNEL values is not considered significant.

C. Existing and Projected Noise Exposures

The contours of equal CNEL values, Figure III-1, provide noise exposures for the projected 1986 environment within the City. Increases in CNEL values over the next eleven year period, due to traffic generated noise, will be minimal. Figure III-5 provides the yearly increase in dB for the contours adjacent to the arterials to account for increased traffic. The State Noise Element requirements call for contours of existing and projected noise levels. The corrections of 1 to 1-1/2 dB are not considered significant, however, if desired, they may be subtracted from each of the contours to obtain estimates of existing exposure levels.

CITY OF SAN MARINO

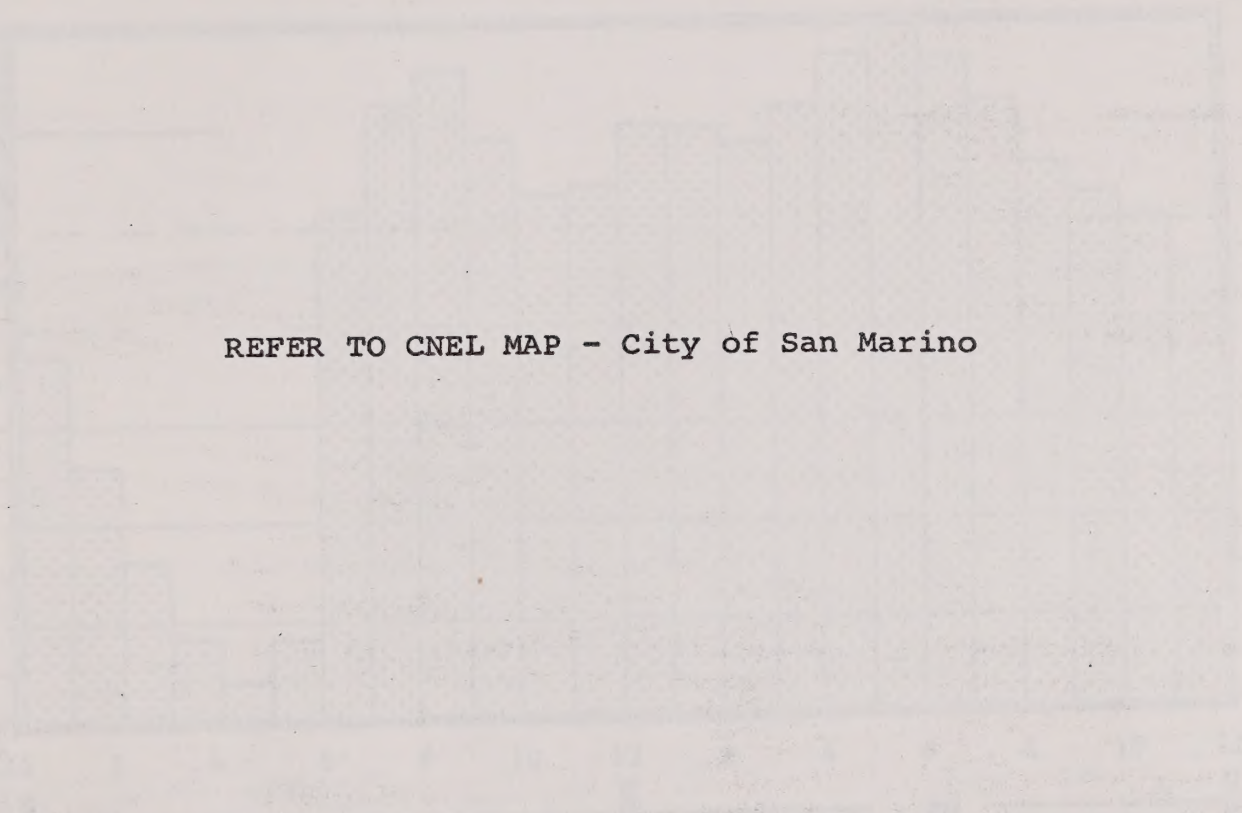
Average Daily Traffic (ADT), 1974/1986 and CNEL Values on the Major Arterials*

ARTERIAL	1974 ADT	1986 ADT	Distance to 65 CNEL***
Huntington Drive	25,000 30,000	30,000** 40,000	125 feet 145
California Boulevard	14,000 17,000	16,000 18,000	85 90
Los Robles Avenue	15,000 17,000	17,000 20,000	87 93
San Marino Avenue	4,000 7,000	5,000 8,000	- -
Monterey Road	4,000 8,000	5,000 9,000	- -
Mission Street	6,000 9,000	7,000 11,000	- 50
El Molino Avenue	2,500 5,500	3,000 8,500	- 43
Granada Avenue	5,500	5,500	-
Oak Knoll Avenue	6,000	7,000	-
Lorain Road	2,000 4,000	2,500 5,000	- -
Virginia Road	2,000 4,500	2,500 5,000	- -
Del Mar Avenue	4,000	4,500	-
Rose Avenue	1,500 3,500	2,500 4,000	- -
Winston Avenue	3,000	3,500	-
Arden Road	1,000 2,500	1,500 3,000	- -

*Traffic Projection factor of 1.05 was used to project 1973 ADT's to 1974. Refer to Reference 12 for source of ADT's.

**Two values provide the range of ADT's along the arterial.

***Dash line indicates that 65 CNEL does not extend beyond arterial right of way. Distance indicates is from near-lane centerline to 65 CNEL Contour.



REFER TO CNEL MAP - City of San Marino

Figure III-1 CNEL CONTOURS FOR THE CITY OF SAN MARINO

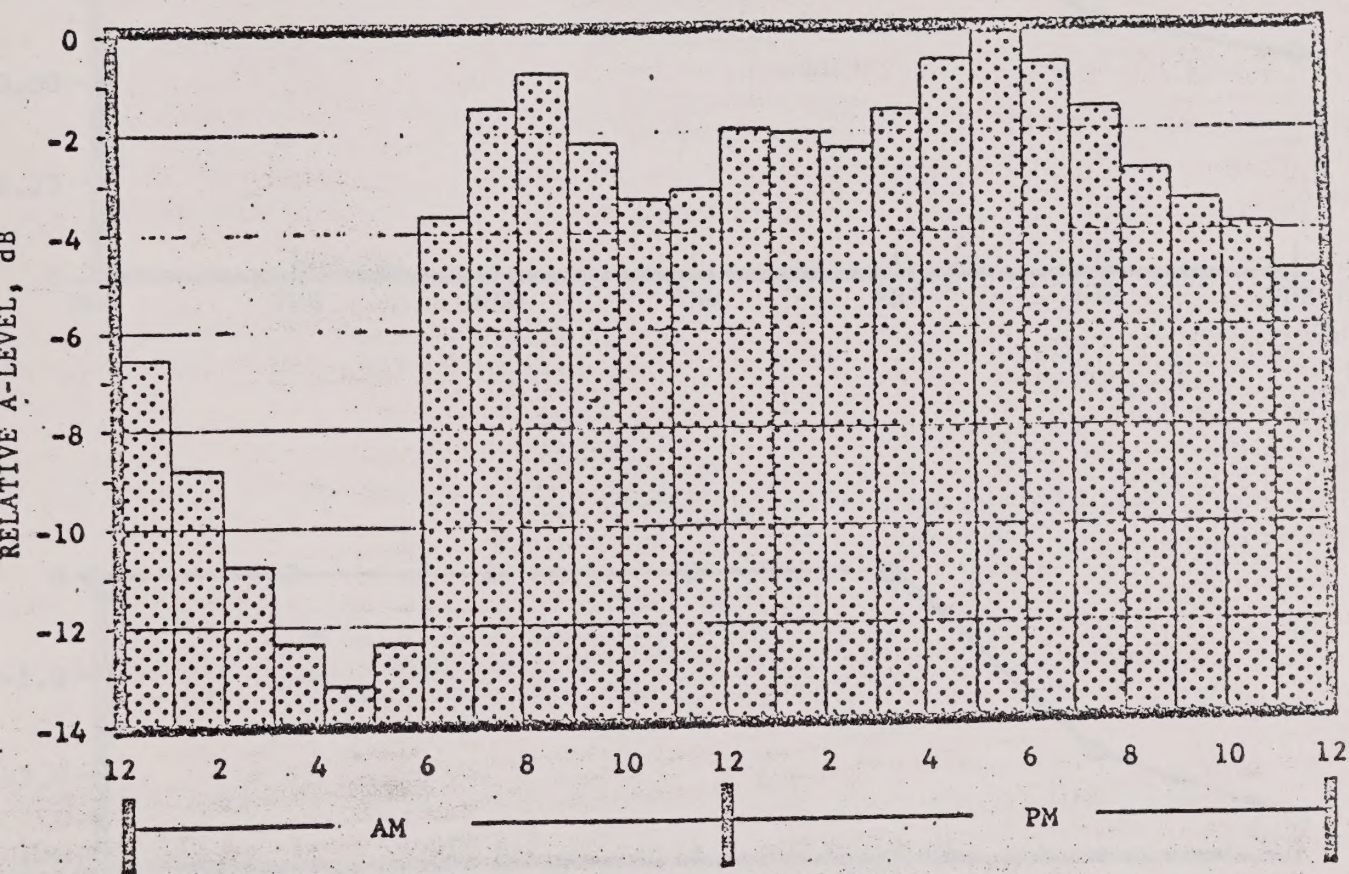
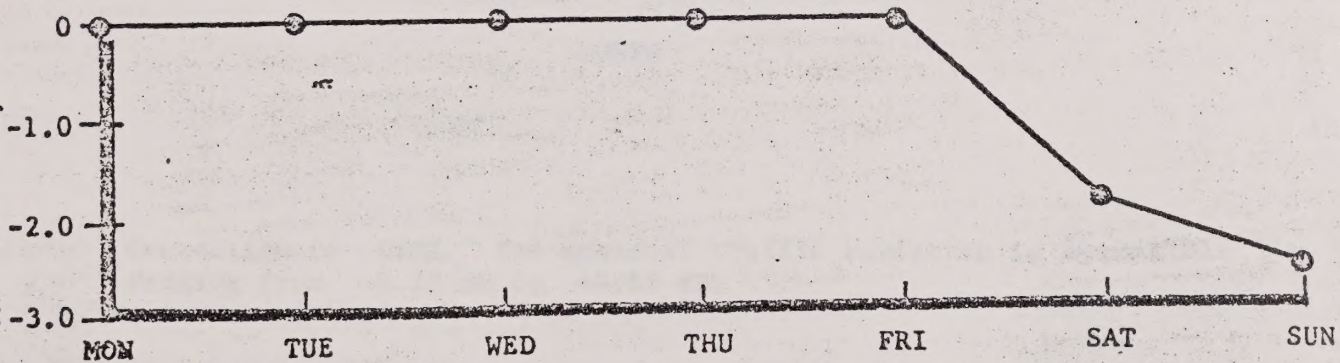
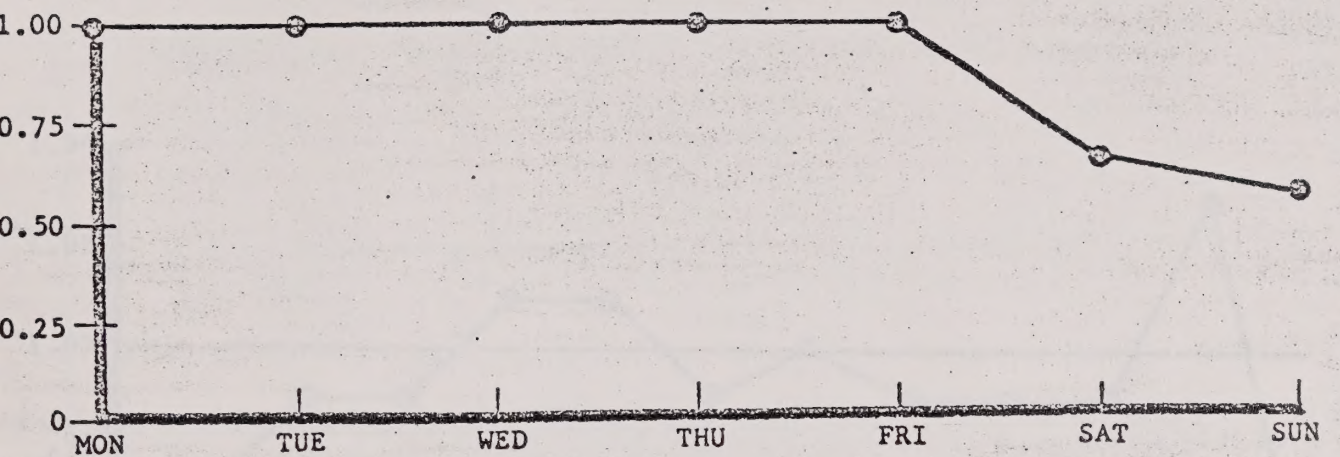
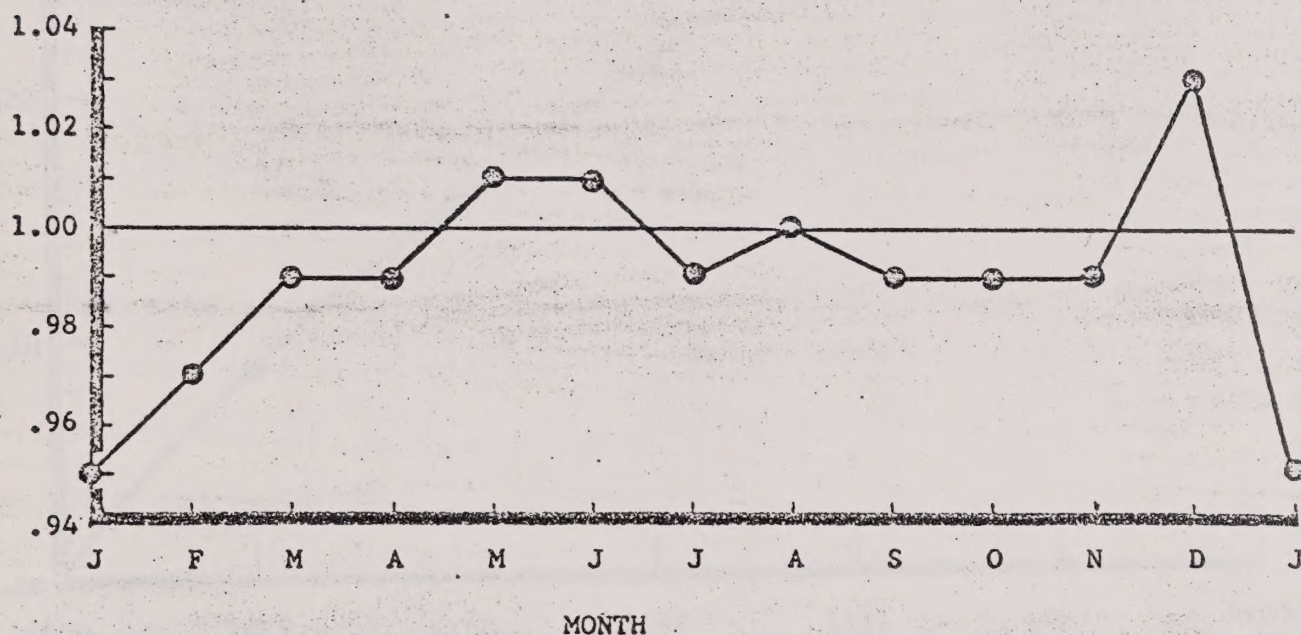


Figure III-2 TYPICAL NOISE LEVEL VARIATION WITH TIME-OF-DAY AT LOCATIONS NEAR THE ARTERIALS



• Figure III-3 DAY-OF-WEEK TRAFFIC VOLUME AND NOISE EXPOSURE LEVEL VARIATION.



Correction to CNEL for seasonal traffic variation is negligible ranging from -0.22 dB to +0.13 dB.

Figure III-4 SEASONAL AVERAGE DAILY TRAFFIC (ADT) VARIATION

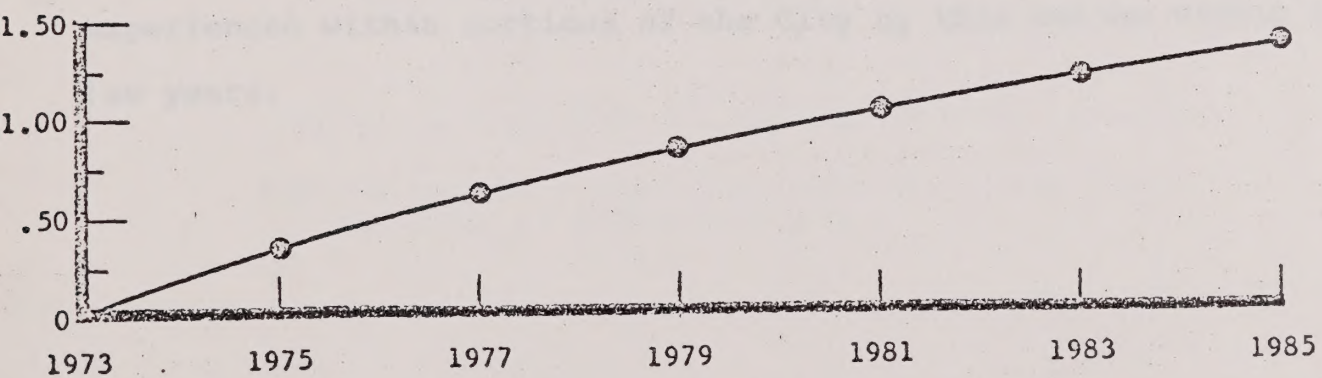
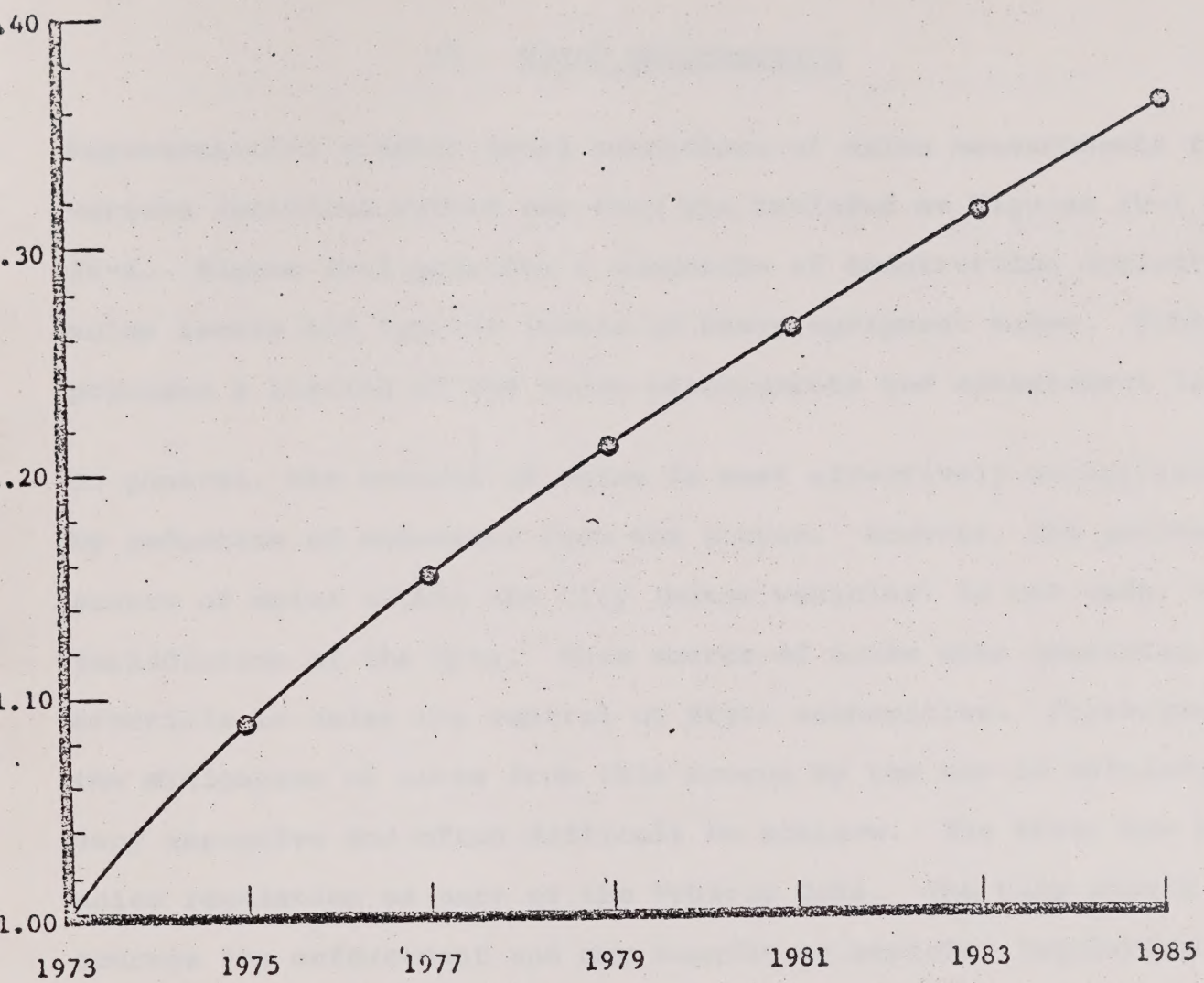


Figure III-5 TRAFFIC PROJECTION FACTOR AND CORRESPONDING * CNEL INCREASE

IV. NOISE MEASUREMENTS

Representative graphic level recordings of noise measurements for various locations within the City are included as Figures IV-1 to IV-4. Figure IV-5 provides a composite of construction activity noise levels and typical levels of heavy equipment noise. Table IV-1 provides a listing of the noise measurements and measurement locations.

In general, the control of noise is most effectively accomplished by reduction of emissions from the source. However, the predominate source of noise within the City (motor vehicles) is not under the jurisdiction of the City. This source of noise when generated on the arterials is under the control of State authorities. Furthermore, the mitigation of noise from this source by the use of barriers, is very expensive and often difficult to achieve. The State now has a noise regulation as part of the Vehicle Code. The City should encourage its enforcement and may benefit as stricter regulations are adopted and enforced, particularly along Huntington Drive. The U. S. Environmental Protection Agency is considering a policy and the ultimate regulation of vehicle noise. Some benefit may be experienced within portions of the City by this action within the next few years.

TABLE IV-1

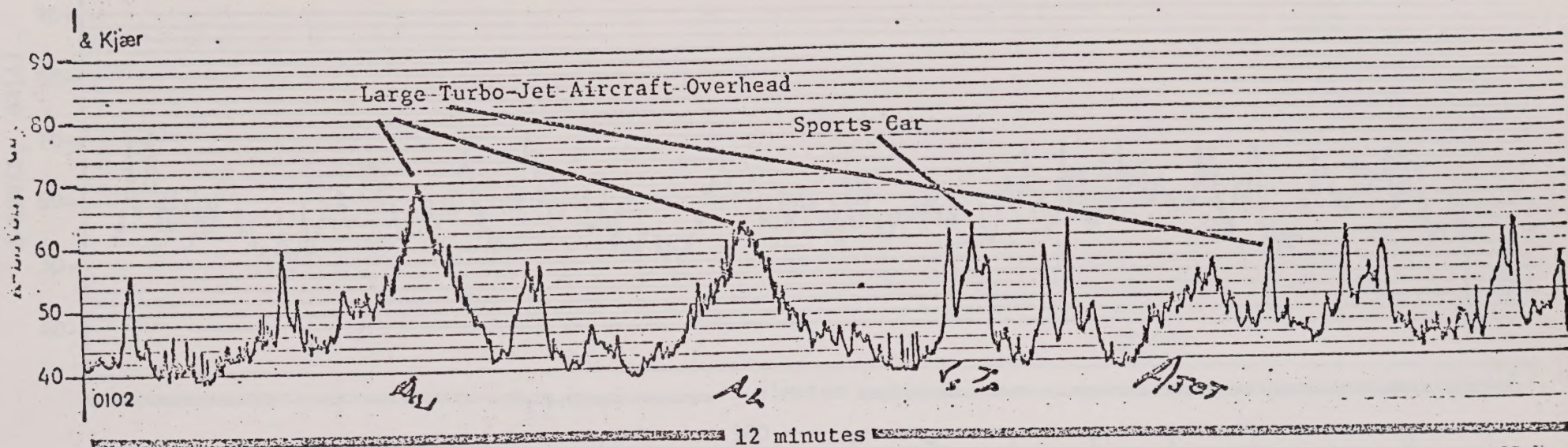
NOISE MEASUREMENTS AND NOISE MEASUREMENT LOCATIONS

CITY OF SAN MARINO

LOCATION NO.*	LOCATION	NOISE LEVEL, dB(A)**		
		L ₉₀	L ₅₀	L ₁₀
1	Roanoke Road east of West Haven Road	42	49	58
2	Huntington Drive west of San Gabriel Boulevard	52	55	64
3	Roanoke Road west of Old Mill Road	42	49	60
4	Oak Street between Los Robles and Garfield	49	55	60
5	Carlaris Road east of El Molino Avenue	48	54	62
6	Shenandoah Road north of Virginia Road	50	53	61
7	North end of Oak Grove Place	45	49	54
8	Greenwood Avenue at northern boundary of the City	48	53	57
9	Stratford Road at entrance to Huntington Library	44	54	62
10	North end of Lombardy Place north of Lombardy Road.	48	52	56

*Refer to CNEL Contour Map for typical locations.

**Measurements recorded between the hours from
12:00 noon to about 5:00 p.m.



TIME: 1430 TO 1442

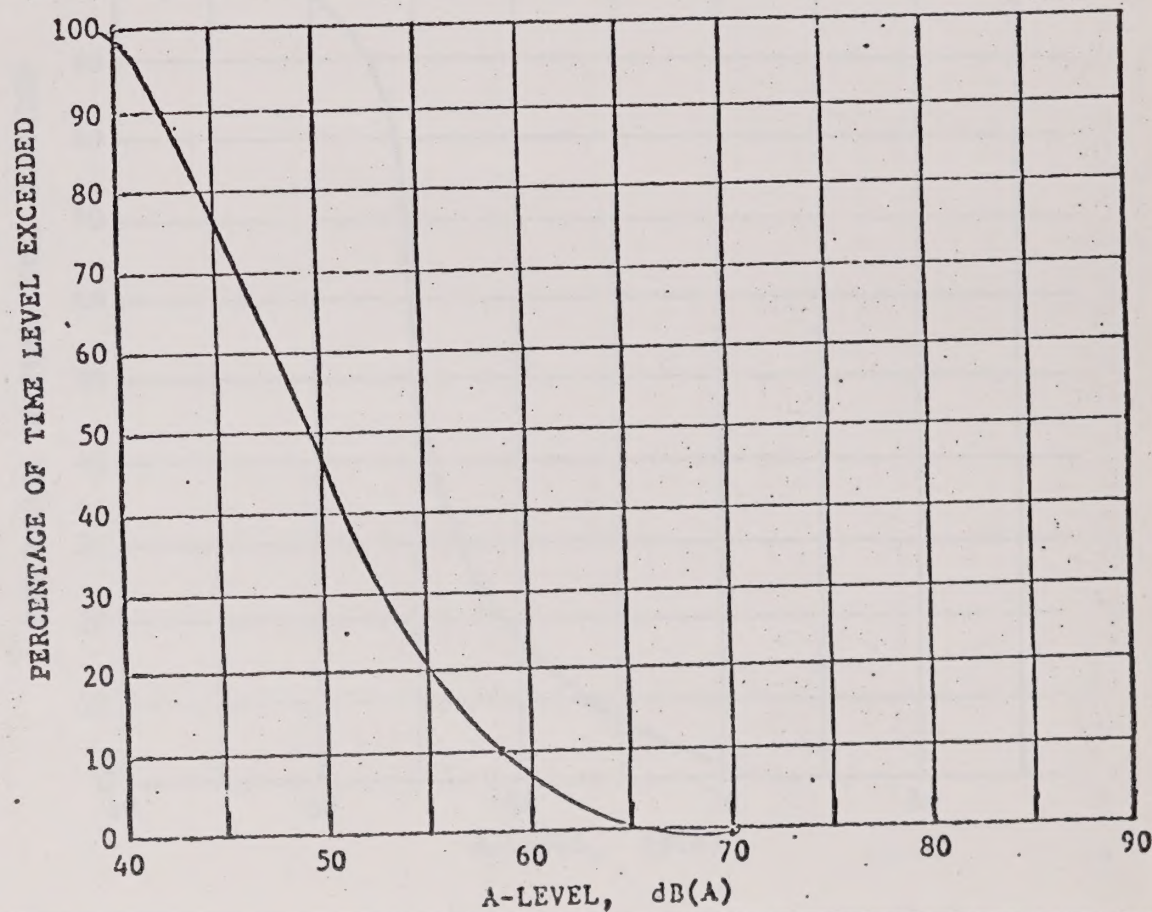
DATE: November 13, 1974

Paper Speed: .3 mm/sec.

PROJECT: San Marino

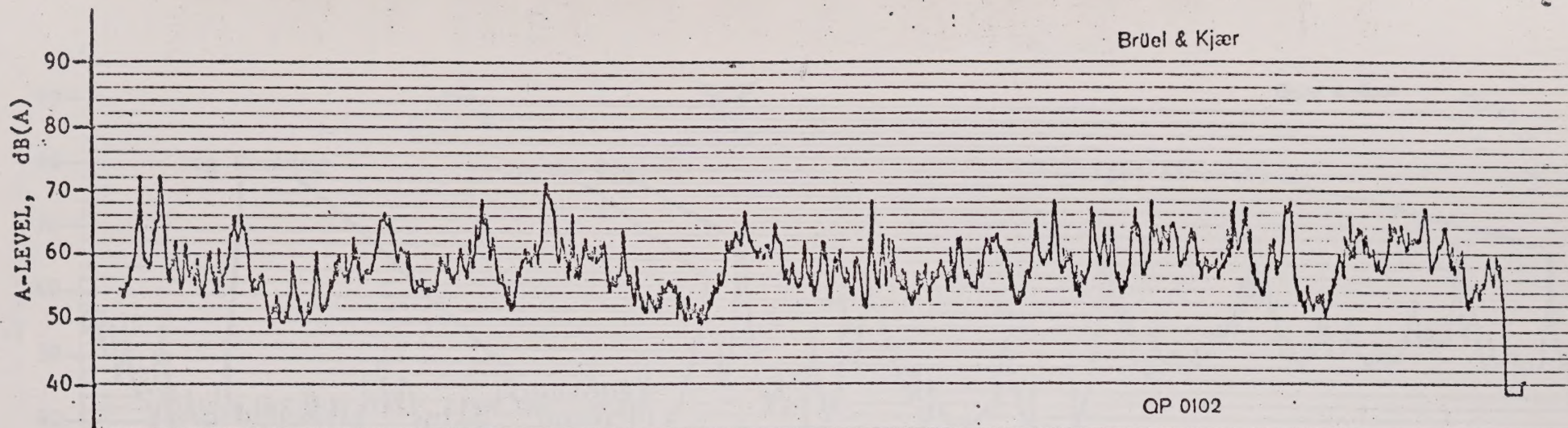
LOCATION: No. 1

A-LEVEL: L_{90} 42 L_{50} 49 L_{10} 58



A-Level Variation

Figure IV-1



12 minutes

TIME: 1507 TO 1519

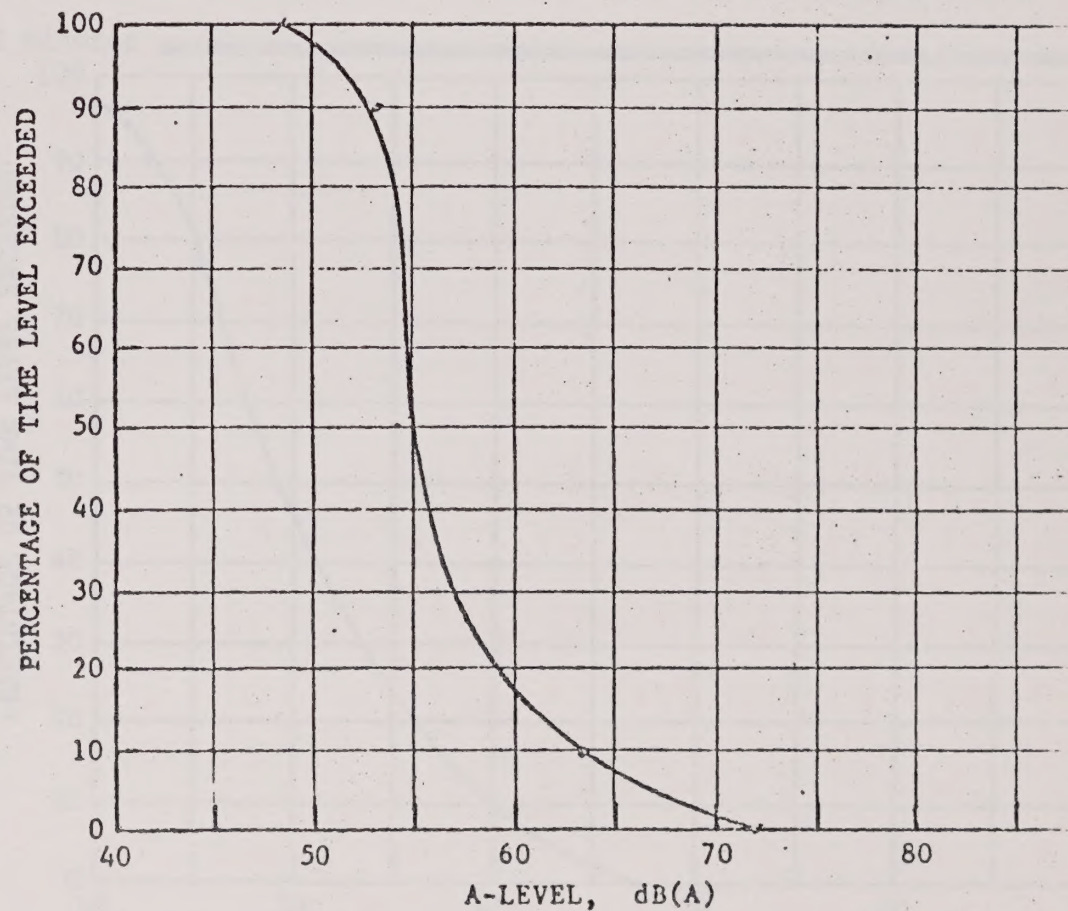
DATE: November 13, 1974

Paper Speed: .3 mm/sec.

PROJECT: San Marino

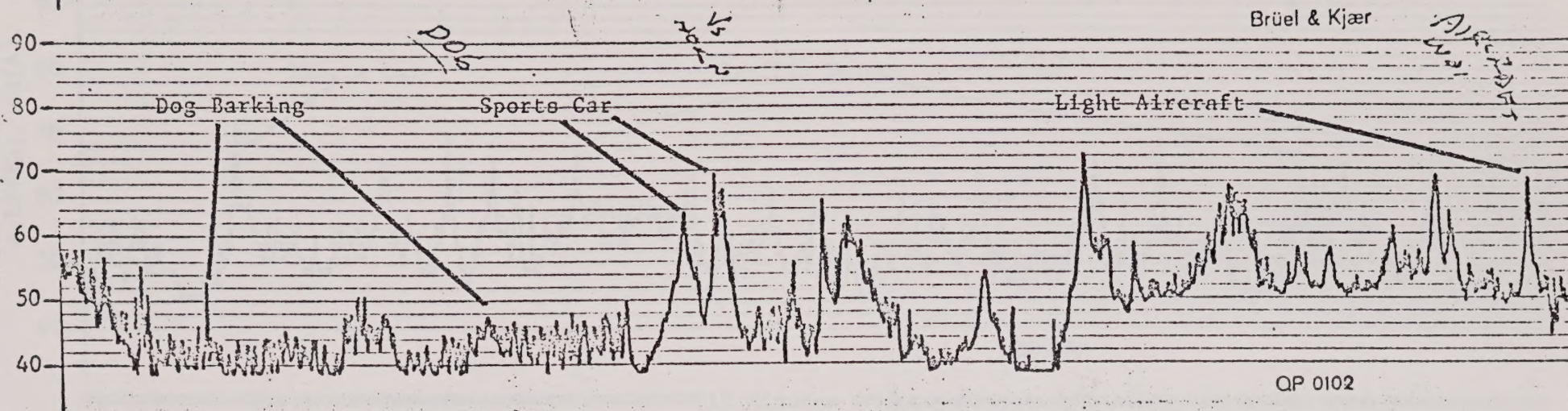
LOCATION: No. 2

A-LEVEL: L_{90} 52 L_{50} 55 L_{10} 64



A-Level Variation

Figure IV-2



TIME: 1345 TO 1357

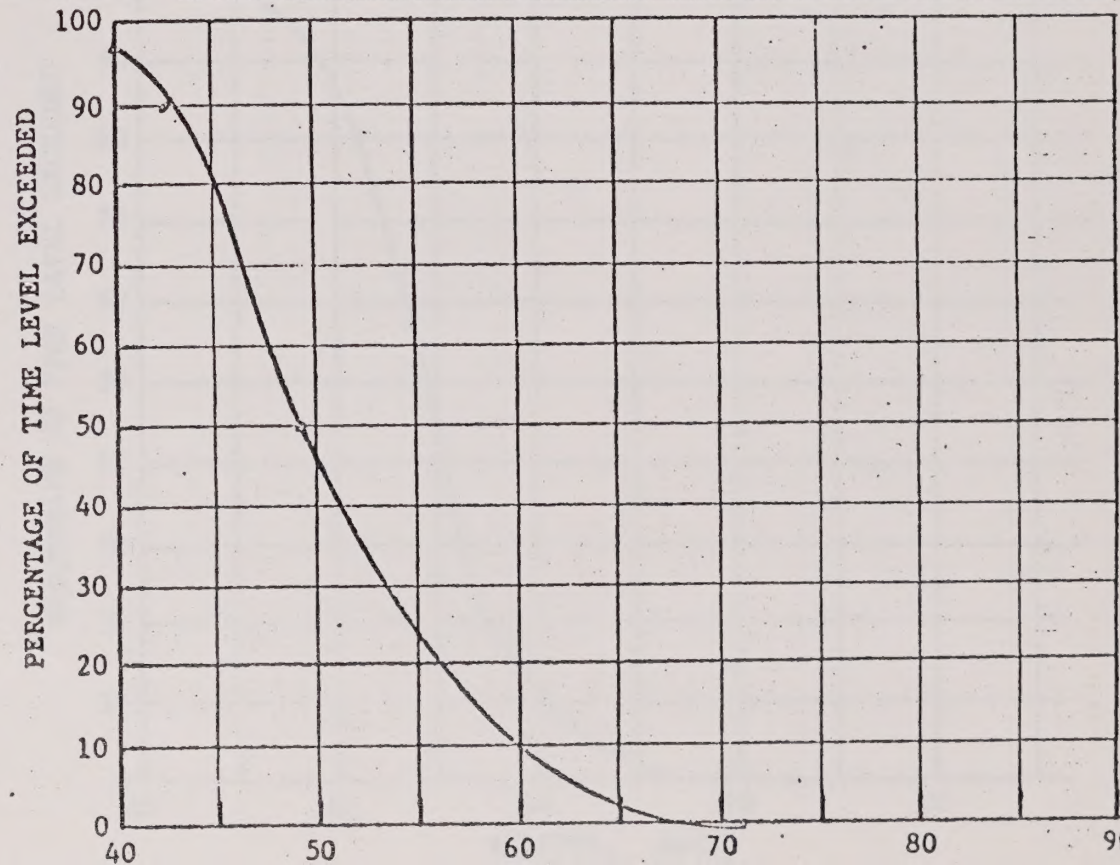
DATE: December 9, 1974

Paper Speed: .3 mm/sec

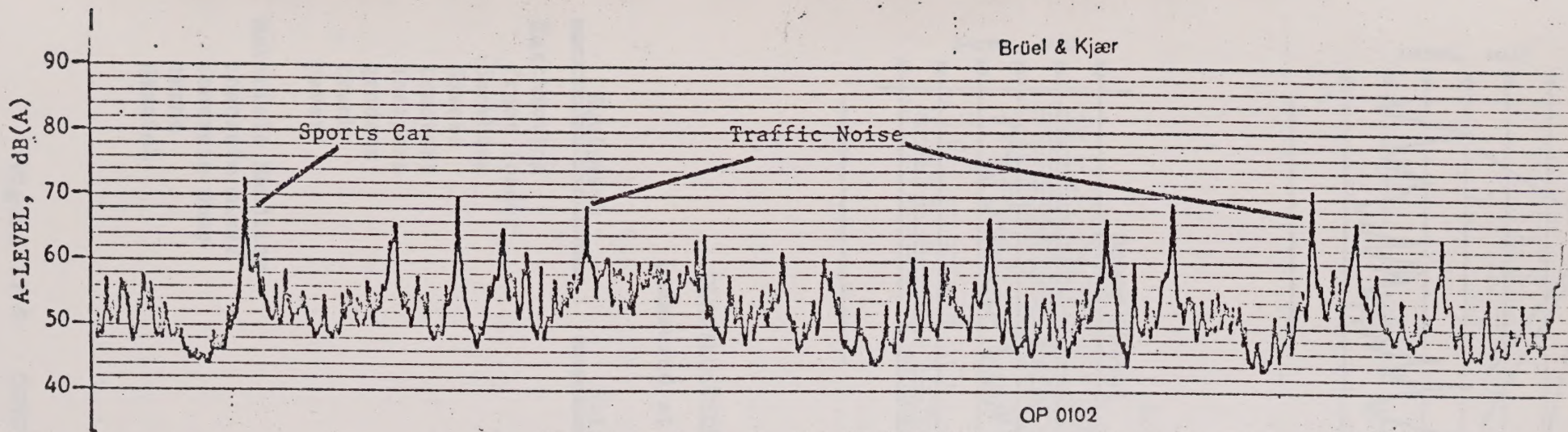
PROJECT: San Marino

LOCATION: No. 3

A-LEVEL: L_{90} 42 L_{50} 49 L_{10} 60



A-Level Variation



12 Minutes

TIME: 1415 TO 1427
 DATE: December 9, 1974
 Paper Speed: .3 mm/sec.

PROJECT: San Marino
 LOCATION: No. 4

A-LEVEL: L₉₀ 49 L₅₀ 55 L₁₀ 60

A-Level Variation

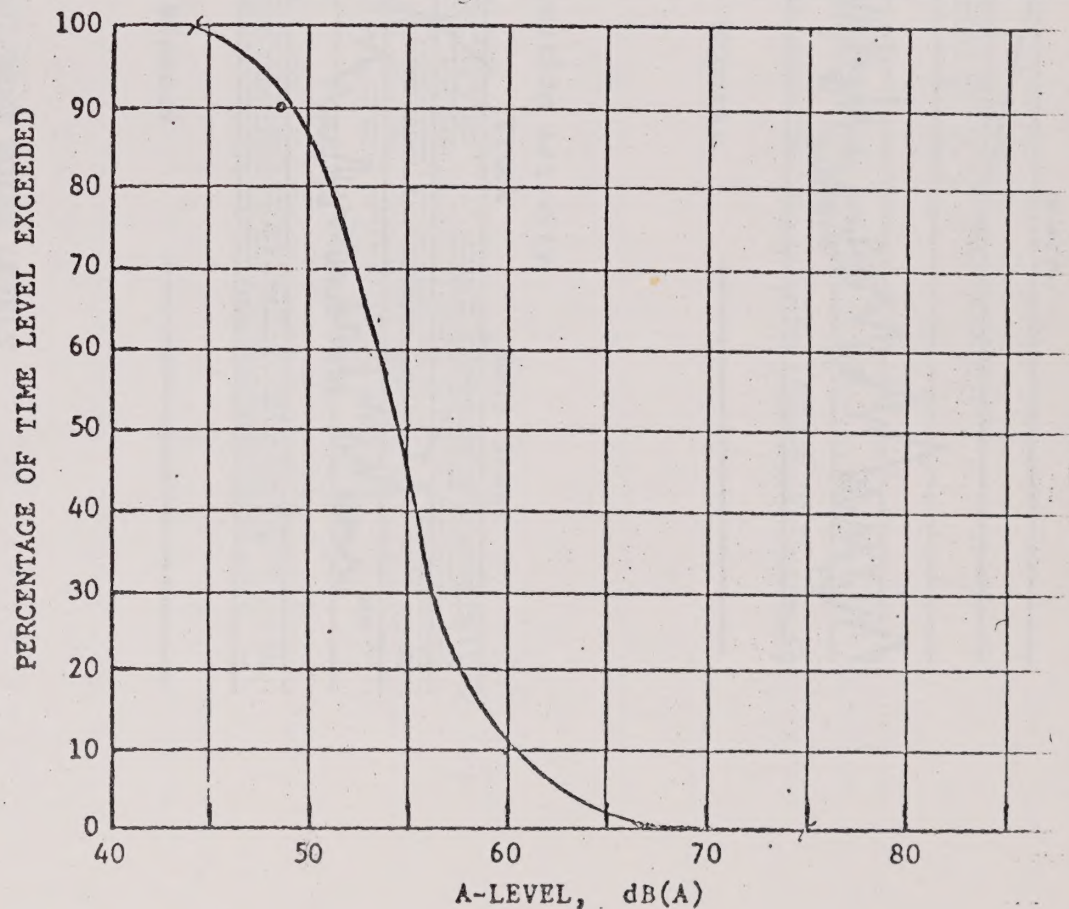
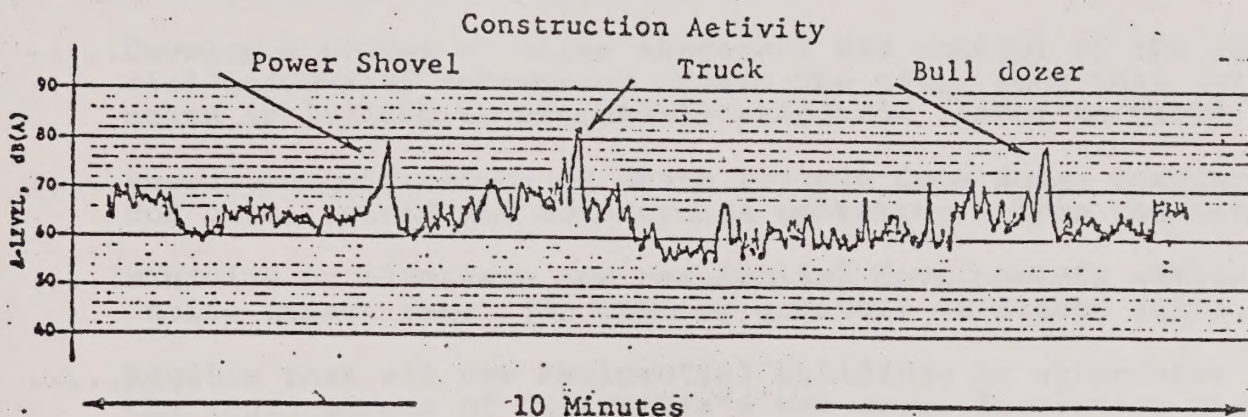
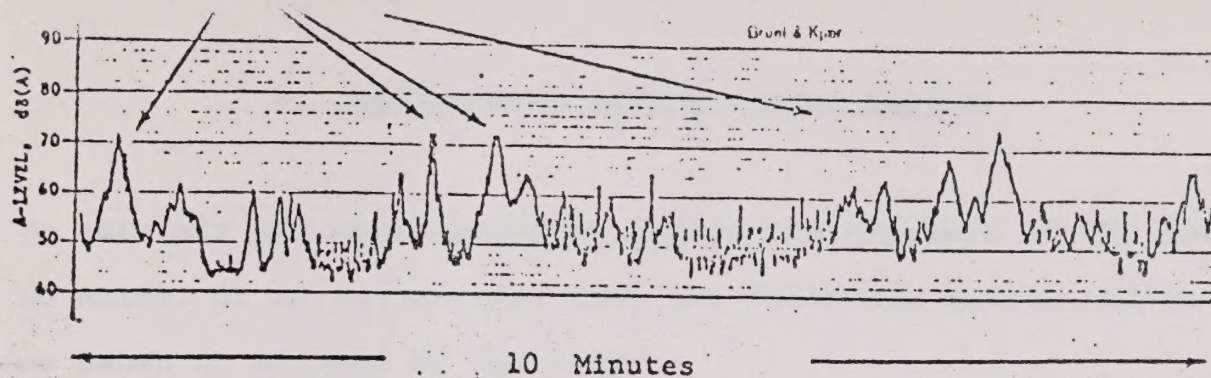


Figure IV-4



CONSTRUCTION EQUIPMENT NOISE LEVELS
(measured at a distance of 50 feet)

Equipment	Noise Level	Equipment	Noise Level
Earthmoving		Stationary	
front loader	79 dB(A)	pumps	76 dB(A)
backhoes	85	generators	78
dozers	80	compressors	81
tractors	80		
scrapers	88	Impact	
graders	85	pile drivers	101
truck	91	jack hammers	88
paver	89	rock drills	98
		pneumatic tools	86
Materials Handling		Other	
concrete mixer	85	saws	78
concrete pump	82	vibrator	76
crane	83		
derrick	88		

Figure IV-5 CONSTRUCTION ACTIVITY NOISE

V. RECOMMENDED ACTION and/or POLICY

To maintain and where possible reduce the exposure of the community to noise, it is recommended that the following action and/or policy be taken or adopted by the City:

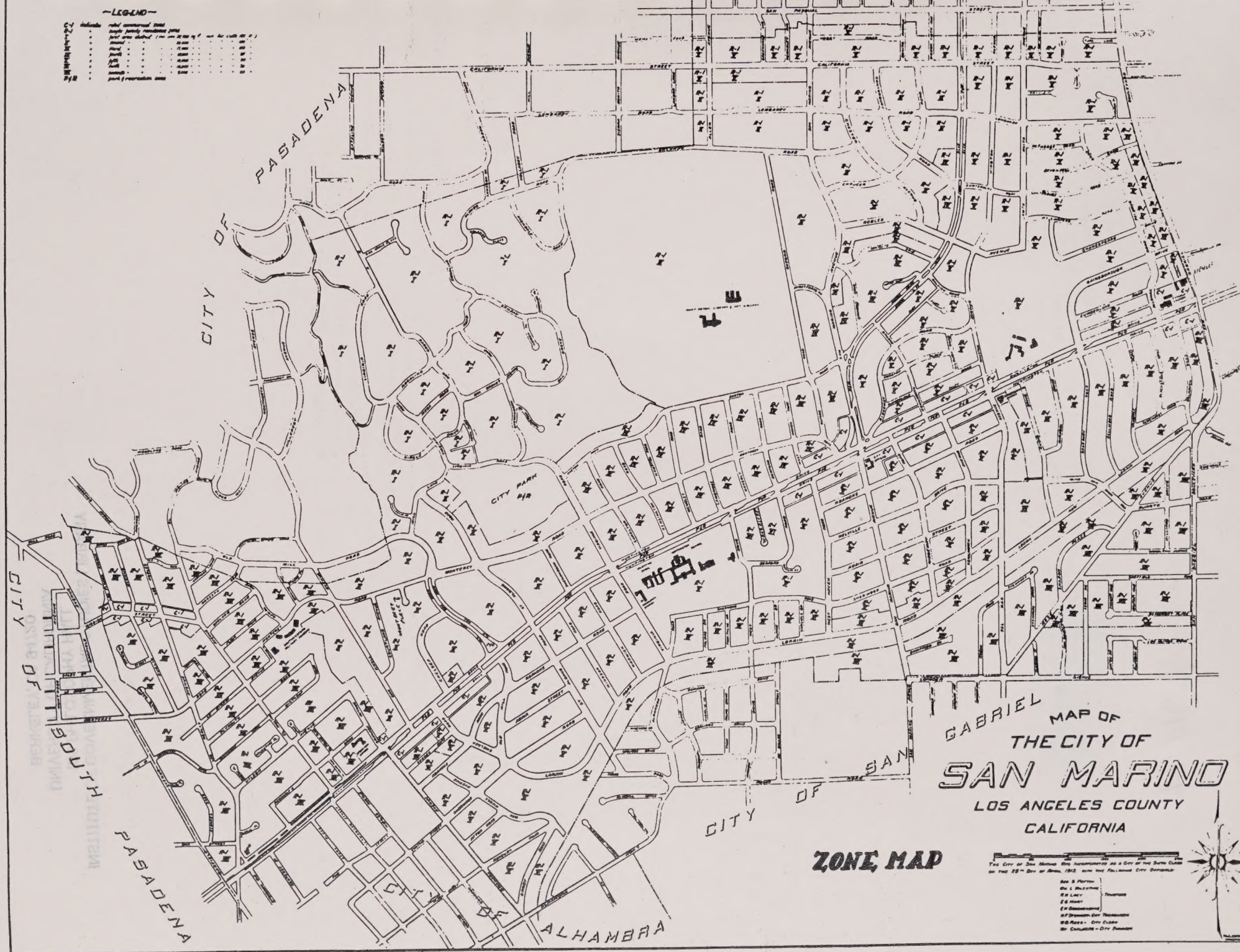
-Encourage employers to observe State and Federal Occupational Health and Safety Noise Standards
-Develop a policy of noise abatement and control of the commercial/industrial activities within the City, such that intrusive noise is limited to acceptable standards (refer to Table II-2).
-Encourage enforcement of State Vehicle Code Noise Standards for cars, trucks and motorcycles operating within the City.
-Minimize or eliminate new residential developments within the "noise impact zone" (65 CNEL or greater) of Figure III-1.
-Require that all new residential buildings or structures meet the requirements of California's new noise insulation standards.*
-Require all City Departments to include noise control requirements in the procurement of equipment.

*Cal. Adm. Code: Title 25, Chapter 1, Subchapter 1, Art. 4, Noise Insulation Standards.

REFERENCES

1. "Highway Noise, Measurement, Simulation, and Mixed Reactions", Highway Research Board, Report 117, 1971.
2. "Highway Noise, A Design Guide for Highway Engineers", Highway Research Board, Report 117, 1971.
3. "Highway Noise, A Field Evaluation of Traffic Noise Reduction Measures", Highway Research Board, Report 144, 1973.
4. T. J. Shultz, "Noise Assessment Guidelines - Technical Background" U.S. Dept. of Housing & Urban Development, Report No. TE/TN 172, 1971.
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6. "A Study of the Magnitude of Transportation Noise Generation & Potential Abatement", U.S. Dept. of Transportation, a set of 7 reports, 1970.
7. "Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure", EPA Aircraft/Airport Noise Study Report, July, 1973.
8. "Community Noise Assessment - Ocean Approaches at Los Angeles International Airport", Bolt, Beranek & Newman, Inc., Report 2418, 1971.
9. "Noise from Construction Equipment and Operations, Building Equipment and Home Appliances", U.S. Environmental Protection Agency, Report PB 206 717 (National Technical Information Service No. NTID 300.1), 1971.
10. "Industrial Noise Manual", American Industrial Hygiene Association, (14125 Prevost Street, Detroit, Michigan 48227, \$15.00), 1966.
11. "Noise Control in Multifamily Dwellings", U.S. Department of Housing and Urban Development, (Supersedes FHA No. 750), 1963.
12. Traffic Flow Map, City of San Marino, 1973 and 1986.

C-V	Indicate	rate commercial rates					
2-1	"	single family residential zone					
1-1	"	first class residential zone	100	100	100	100	100
1-2	"	second	100	100	100	100	100
1-3	"	third	100	100	100	100	100
1-4	"	fourth	100	100	100	100	100
1-5	"	fifth	100	100	100	100	100
1-6	"	sixth	100	100	100	100	100
1-7	"	seventh	100	100	100	100	100
1-8	"	eight	100	100	100	100	100
1-9	"	ninth	100	100	100	100	100
1-10	"	tenth	100	100	100	100	100
1-11	"	eleventh	100	100	100	100	100
1-12	"	twelfth	100	100	100	100	100
1-13	"	thirteenth	100	100	100	100	100
1-14	"	fourteenth	100	100	100	100	100
1-15	"	fifteenth	100	100	100	100	100
1-16	"	sixteenth	100	100	100	100	100
1-17	"	seventeenth	100	100	100	100	100
1-18	"	eighteenth	100	100	100	100	100
1-19	"	nineteenth	100	100	100	100	100
1-20	"	twentieth	100	100	100	100	100
1-21	"	twenty-first	100	100	100	100	100
1-22	"	twenty-second	100	100	100	100	100
1-23	"	twenty-third	100	100	100	100	100
1-24	"	twenty-fourth	100	100	100	100	100
1-25	"	twenty-fifth	100	100	100	100	100
1-26	"	twenty-sixth	100	100	100	100	100
1-27	"	twenty-seventh	100	100	100	100	100
1-28	"	twenty-eighth	100	100	100	100	100
1-29	"	twenty-ninth	100	100	100	100	100
1-30	"	thirtieth	100	100	100	100	100
1-31	"	thirty-first	100	100	100	100	100
1-32	"	thirty-second	100	100	100	100	100
1-33	"	thirty-third	100	100	100	100	100
1-34	"	thirty-fourth	100	100	100	100	100
1-35	"	thirty-fifth	100	100	100	100	100
1-36	"	thirty-sixth	100	100	100	100	100
1-37	"	thirty-seventh	100	100	100	100	100
1-38	"	thirty-eighth	100	100	100	100	100
1-39	"	thirty-ninth	100	100	100	100	100
1-40	"	fortieth	100	100	100	100	100
1-41	"	forty-first	100	100	100	100	100
1-42	"	forty-second	100	100	100	100	100
1-43	"	forty-third	100	100	100	100	100
1-44	"	forty-fourth	100	100	100	100	100
1-45	"	forty-fifth	100	100	100	100	100
1-46	"	forty-sixth	100	100	100	100	100
1-47	"	forty-seventh	100	100	100	100	100
1-48	"	forty-eighth	100	100	100	100	100
1-49	"	forty-ninth	100	100	100	100	100
1-50	"	fiftieth	100	100	100	100	100
1-51	"	fifty-first	100	100	100	100	100
1-52	"	fifty-second	100	100	100	100	



GABRIEL
MAP OF
THE CITY OF
SAN MARINO
LOS ANGELES COUNTY
CALIFORNIA

ZONE MAP

The City of San Antonio Was Incorporated as a City of the State of Texas on the 28th Day of April, 1822. Since That Time the Following City Officials:

JOSE S. MARTINEZ	}	Presidents
JOSE A. SANCHEZ		
JOSE L. LAMAY		
JOSE MARTINEZ		
JOSE SANCHEZ		
JOSE MARTINEZ	}	Vice Presidents
JOSE SANCHEZ		
JOSE LAMAY		
JOSE SANCHEZ	}	City Clerk
JOSE LAMAY		
JOSE SANCHEZ	}	City Marshal
JOSE LAMAY		

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